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Marketing capabilities, innovation and firm performance

by

S. Arunachalam

A dissertation submitted to the graduate faculty
in partial fulfillment of the requirements for the degree of

DOCTOR OF PHILOSOPHY

Major: Business and Technology (Marketing)

Program of Study Committee:

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ABSTRACT

The importance of marketing capabilities and innovation is widely acknowledged in strategic marketing literature. Yet, extant research has examined the importance of these strategic factors independently in providing firm's economic benefits. In this dissertation, I propose three standalone yet interwoven essays, in answering questions regarding the interplay of these two strategic factors and their sources. Essay one proposes the integration of both marketing capabilities and innovation in exploring how marketing capabilities enhance firm's ability to profit from innovation. Essays two and three examine the sources and consequences of marketing and innovative capabilities. The second essay proposes CEO's personality trait of self-monitoring as a key driver of a firm's innovative capabilities. Essay three investigates how CEO's managerial ties aid in enhancing the impact of marketing and innovation capabilities on profit growth over time. Overall, through these three essays I attempt to demonstrate the importance of marketing and innovation capabilities and provide a fresh perspective in examining the sources and outcomes of these capabilities.

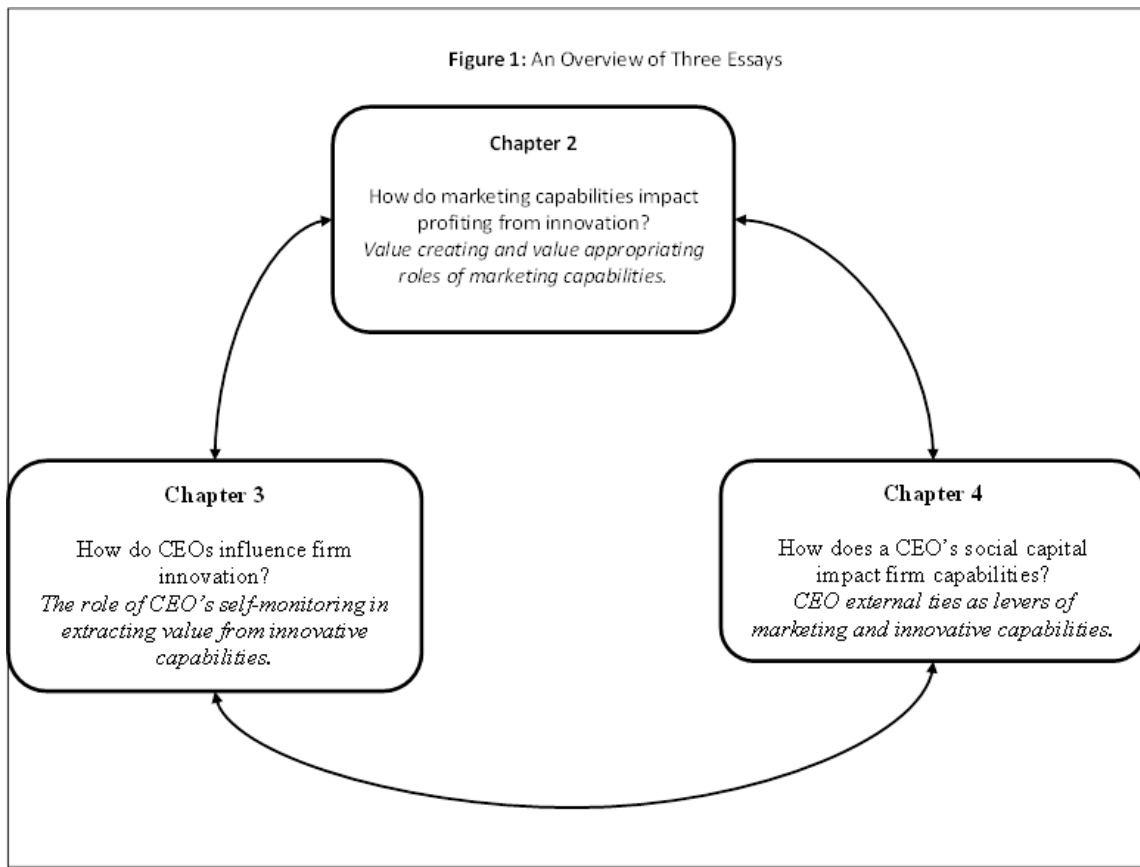
CHAPTER 1: INTRODUCTION

This research examines how marketing and innovative capabilities together can act as a foundation for a firm's competitive position and superior performance. Capabilities represent organizational processes that use different types and combinations of firm resources to achieve competitive advantage through adapting to and creating market changes (Teece, Pisano, and Shuen 1997; Eisenhardt and Martin 2000; Helfat et al. 2007). Customers constitute the primary driving force behind a firm's operation, and marketing and innovative capabilities have been identified as the two key pillars that can nurture, maintain, and drive customer value and thereby build a firm's economic performance (Drucker 1954, 1985).

Given their importance, both marketing and innovative capabilities have received much attention from scholars. Specifically, marketing capabilities have been shown to have significant impact on a firm's financial performance (Morgan, Slotegraaf, and Vorhies 2009), new product performance (Moorman 1995), customer performance (Morgan and Rego, 2006), and overall market performance (Vorhies, Morgan, and Autry 2009). Innovative capabilities have been broadly classified into incremental and radical based on the nature of innovations. While incremental innovative capability reflects the ability of the firm to generate innovations that refine existing products/services, radical innovative capability represents the firm's ability to generate innovations that are significantly different and transform existing products/services (Chandy and Tellis 1998). Extant literature has underscored several factors driving these capabilities, such as intellectual capital (Subramaniam and Youndt 2005), social capital (Nahapiet and Ghoshal 1998), and strategic orientation (Gatignon and Xuereb 1997; Han, Kim, and Srivastava 1998) as well as the role

of such innovations in driving firm performance outcome (cf. meta-analysis Rubera and Kirca 2012).

However, the literature is silent on (a) the role of marketing in facilitating firms profiting from innovation (Hauser, Tellis, and Griffin 2009) and (b) how firms nurture and build their marketing and innovative capabilities. The goal of this research is to address these two gaps. I provide a brief summary of the research questions that are the focus of this proposal in Figure 1. Three individual, yet complementary essays, each addressing one research question are then proposed. All three research essays are examined in an emerging market context, namely, India. There has been a dearth of studies conducted in growing transition economies such as India and both management and marketing scholars have called for more studies in this context (Sheth 2011; Tsui 2007).



In the first essay I attempt to establish the importance of marketing capabilities for a firm's innovation and performance outcomes. Unlike previous studies which rely on simplistic models that link marketing capabilities with firm performance, I develop a comprehensive theoretical model based on value creation and value extraction concepts in unpacking the role of marketing capabilities. I start by identifying a key strategic orientation of the firm namely entrepreneurial orientation as the primary driver behind a firm's innovation. Next, I build a 'pathway to profitability' model from entrepreneurial orientation to innovation to firm profits. Subsequently, I divide this pathway into two stages of value creation and value appropriation and test the importance of marketing capabilities in both these stages. Finally, I propose that the entire pathway provides economic benefits to the firm only at higher levels of marketing capabilities. The results also provide valuable inferences for managers in terms of resource allocation and profiting from innovation.

Insights into the role and scope of marketing capabilities in the firm's innovation pathway to profitability raise a critical question on *'from where and how firms develop such capabilities?'* In the second essay I examine how CEO personality impacts innovative capabilities of the firm. The choice of CEO personality as a critical antecedent is driven by two reasons. First, dynamic capabilities (Teece, Pisano, Shuen 1997) literature provides strong arguments in favor of top management support, actions, characteristics, and beliefs as a potent driver of a firm's strategic choices. Second, capabilities are embedded in organizational processes (Srivastava, Shervani, and Fahey 1999); extracting value from them not only needs firm level vision but also collective managerial effort and discretion (Hambrick and Masaon 1984). Although these may come from several sources in the top management team of a firm, I focus on the CEO as the representative of the collective.

Specifically, I examine the influence of CEO's self-monitoring as a personality trait in enhancing firm's innovative capabilities. Further, I propose that this trait enhances the innovative capability to performance association under different environmental conditions .Overall this study adds value to the understudied concept of CEO self-monitoring. Through this essay I attempt to extend the literature on executive personality and its role in enhancing firm innovation.

In the final essay, I build on the inferences and insights gained from the first two essays and develop a conceptual model based on CEO's social ties in understanding how firms' effectively utilize their marketing and innovative capabilities. I propose a model based on social capital literature and argue that CEO's managerial ties with important stakeholders – both business and political, act as a source of information, knowledge, and resources which can be used for building firm capabilities. In sum, the three essays apply and contribute to the literature on dynamic capabilities, innovation, and marketing strategy. I end this introduction chapter by providing brief summaries of the three chapters and then in the next sections present the three essays each as a chapter.

Chapter Summaries

Chapter two investigates the role of marketing capabilities in enabling firms to profit from innovation. This study has two motivations. First, I expand the scope of marketing capabilities by delineating value creating and value capturing roles to architectural and specialized marketing capabilities respectively. Next, in the firm's strategic pathway to profitability from entrepreneurial orientation to innovation to profit, I build arguments from

dynamic capabilities theory to explicate the leveraging role of marketing capabilities. Results suggest that firms profit from innovation at higher levels of both architectural and specialized marketing capabilities.

In the third chapter, I draw from upper echelons theory (Hambrick and Mason 1984; Hambrick 2007) to examine an understudied personality trait of the CEO, self-monitoring, as a key driving force behind a firm's innovative capabilities. Arguing from the principal notion that a firm is a reflection of its top managers' beliefs and actions, I propose that CEO's personality is a potent strategic driver of a firm's capabilities (Nadkarni and Herrmann 2010). CEOs who are high self-monitors tend to be more responsive to changing market needs and are sensitive to the behaviors of the employees within the firm. Thus, their sensitivity to changes in their external environment and ability to drive new initiatives to adapt to these changes, position them with the capacity to influence innovation within the firm. Results provide support to these arguments and additionally reveal that CEO's self-monitoring has a stronger impact on innovative capabilities under dynamic environmental conditions.

Chapter four seeks to answer the question: can firms' marketing and innovative capabilities be effective over time? Borrowing theoretical arguments from social capital literature (Adler and Kwon 2002) I propose that capabilities are enhanced and appropriated through the utilization of external resources (Dyer and Singh 1998). As the CEO plays a critical and unique role with regards to a firm's operations, I examine the social ties maintained by the CEO as a key driver for enhancing capabilities' performance benefits over time. I build testable hypotheses using CEO's external ties i.e., informal social relationships maintained by the CEO with business and institutional entities outside the firm (Geletkanycz and Hambrick 1997) as additional source of opportunities, knowledge, and resources for

marketing and innovative capabilities. Results support these arguments and reveal that CEO's external ties benefit a firm in improving profit growth while simultaneously mitigating risk.

The studies' results have strong implications for managerial actions. From the first essay, it is seen that profiting from innovation occurs through utilization of marketing capabilities. This signals the need for effective resource allocation to marketing activities over and beyond that spent for innovation. In addition, the study's results also point to the efficient allocation of resources to both value creating and value extracting marketing capabilities as both are crucial in building and extracting maximum economic returns through innovation. The second essay has valuable managerial inputs to the top management team's strategic choices and actions. The results support CEO's self-monitoring as a personality trait for two purposes. First CEOs who are high self-monitors are in a stronger position to drive firm's innovative capabilities. Second, such CEOs being sensitive to changing customer needs and market dynamism are in a better position to extract more value from the firm's innovative capabilities. This shows that firms are better-off in appointing CEOs who are high self-monitors rather than low. Further under dynamic and uncertain market conditions such CEOs emerge as better decision makers. From the third essay, implications for managers is that, over time capabilities earn increasing profits through resources, and knowledge gathered from CEO's external ties with business and political stakeholders. The message is that boundary spanning resources enhance the value that is being appropriated from capabilities to provide sustained growth through increased profits and reduced risk.

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CHAPTER 2: PROFITING FROM INNOVATION: ROLE OF MARKETING CAPABILITIES

Modified from a paper under revision in *Journal of Marketing*

S. Arunachalam¹, Sridhar Ramaswami², Pol Herrmann³, and Doug Walker⁴

ABSTRACT

This article examines how architectural and specialized marketing capabilities play a value creation and value extraction role, respectively, in a firm's innovation pathway to profitability. Grounded in dynamic capabilities and innovation literature, first, we clarify a complex pathway to profitability exhibited through entrepreneurial orientation and innovation, and next, unpack the conditions under which this pathway is profitable using marketing capabilities. Integrating survey data of CEOs and CMOs with multiple objective financial indicators for two time periods from an Indian sample of 201 manufacturing SMEs, the authors uncover three important findings. First, the effect of entrepreneurial orientation on innovation is curvilinear following an inverted-U shape with architectural marketing capabilities increasing the optimal level and minimizing the diminishing return. Second, specialized marketing capabilities strengthen the effect of innovation on firm performance thereby extracting greater commercial value from innovation. Finally, the mediating role of innovation between entrepreneurial orientation and firm profitability is conditional. This

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innovation pathway depends on architectural and specialized marketing capabilities to be profitable. These findings have critical resource allocation implications for managers, in order to profit from innovation. For theory, we point to an expanded scope of marketing capabilities from a value perspective in driving innovation and profitability.

Introduction

“A business has two—and only two—basic functions: marketing and innovation. Marketing and innovation produce results: all the rest are costs.” - Peter Drucker (1954)

Although innovation is widely considered a critical determinant of firm performance, an important question that still remains unanswered is how marketing influences the innovation-performance pathway (Reibstein, Day, and Wind 2009). Researchers have emphasized the effect of innovation on firm performance in studies of the antecedents and outcomes of innovation (Rubera and Kirca 2012; Damanpour 1991) that have examined drivers such as strategic orientation (Gatignon and Xuereb 1997; Zhou, Yim, and Tse 2005), organizational learning (Baker and Sinkula 1999), and entrepreneurial proclivity (Atuahene-Gima 2001). However, as Hauser, Tellis, and Griffin (2006) note we have little understanding of the role that marketing plays in (a) how firms *implement* and (b) *deploy* innovation for achieving competitive advantage. A potential shortcoming of this incompleteness is that marketing's contribution to innovation remains dubious, ultimately tarnishing marketing's credibility with customers and its value within the firm.

We argue that marketing capabilities can support and accelerate the implementation and deployment of innovation. Marketing capabilities enable the firm to integrate and bundle internal and external resource endowments to deliver the desired customer value (Day 1994).

A critical internal resource for innovation is the firm's innovative posture or entrepreneurial orientation (EO). EO, which emphasizes the firm's willingness and aggressiveness in pursuing innovations that meet customers' needs ahead of the competition, is a strong driver of innovation (Lumpkin and Dess 1996). We use the Lepak, Smith, and Taylor (2007) framework to investigate how specific marketing capabilities modify the *value creation* (EO-innovation) and *value appropriation* (Innovation-performance) activities.

We explain the value creating role of architectural marketing capability (AMC) and the value appropriating role of specialized marketing capability (SMC) (Vorhies, Morgan, and Autry 2009). AMC facilitates anticipating market needs, communicating them within the firm, and coordinating the required resources for producing products that consumers need. SMC then reflects enhanced entrepreneurial interest and satisfies the performance objective of the firm in delivering innovations through effective targeting, positioning, and distribution in the marketplace (Morgan 2012). This expanded view of marketing capabilities is central to innovation because marketing not only engenders value potential by translating customer information into new products but also appropriates value by enabling market acceptance of these products.

We make four main contributions to the innovation and marketing literatures. First, we provide theoretical and empirical foundations for an expanded view of the role of marketing capabilities in the *pathway for innovation* to create and capture customer value, a critical challenge expressed in the marketing literature in an attempt to bridge research with practice (Reibstein, Day, and Wind 2009; p.2). We clarify why research findings have been mixed regarding the mediating role of innovation. Although Han, Kim, and Srivastava (1998) find innovation as a pathway for customer orientation's influence on firm performance;

Noble, Sinha, and Kumar (2002) don't find support for innovation as a mediator in the strategic orientation – performance relationship. A meta-analysis by Vincent, Bharadwaj, and Challagala (2004) conclude that innovation might be a partial mediator between firm strategic drivers and performance. These conflicting views might be the result of a research focus on the factors driving innovation, while ignoring how and under what conditions innovation lead to performance. We find that without a certain level of marketing capabilities, firms may even experience negative profitability from their entrepreneurial and innovation efforts.

Second, we show that the pathway to profitability based on EO is more complex than previously recognized (see Table 1). We argue that, beyond an optimal point, EO may not contribute positively to innovation outcomes. The results support our notion that EO's effect of innovation is curvilinear (inverted U) and that AMC reduces the diminishing pattern. We also offer a comprehensive test of the pathway to profitability, in contrast to the piecemeal approach of previous studies. We show that EO, without the support of marketing capabilities, is insufficient for achieving superior firm performance, which has important resource allocation implications between entrepreneurial initiatives and professional marketing activities (Reibstein, Day, and Wind 2009; p.2).

Third, we add a new logic to lay claim for the value and legitimacy of the marketing function within the firm, an endeavor that has consumed marketers during the last decade. By showing that marketing capabilities act as an EO lever, the study provides a robust logic for the value of the marketing function beyond market orientation, inter-departmental connections (Moorman and Rust 1999), innovativeness and accountability (Verhoef and

Leeflang 2009), and handling environmental uncertainty (Homburg, Workman, and Krohmer 1999).

Fourth, we contribute to the understanding of how small and medium-sized manufacturing enterprises (SMEs) can better address innovation challenges despite their disadvantages in terms of resources and competition. Marketing and management experts emphasize the challenges in understanding a firms' strategic role in innovation and call for further studies within such contexts (Sheth 2011; Tsui 2007). SMEs face a scarcity of firm resources (Terziovski 2010) and increased competition that forces them to develop lower-cost new products (Burgess and Steenkamp 2006). We aspire to help SMEs solve the intricacies of the strategic activities that are leading the world's innovation (*The Economist* 2010).

Prior Research and Conceptual Framework

Entrepreneurial Orientation and Firm Performance

EO is considered to be a firm level strategic orientation that emanates from the CEO and the top management team (Covin and Slevin, 1989, 1991; Simsek, Heavey, and Veiga, 2010) and which directs and supports decision making relating to new businesses and product-markets a firm can enter in pursuit of growth. It is comprised of three key dimensions: innovativeness, risk-taking and proactiveness (Miller 1983). A firm is innovative if it actively questions status quo situations and engages constantly in the search for new ideas and opportunities. Risk-taking reflects an acceptance of uncertainty and risk in creative activity; it involves engaging in bold initiatives and new projects that require significant resources in the face of uncertainty. Proactiveness refers to the opportunity-seeking tendency of a firm wherein it addresses future latent needs of the market ahead of its key competitors.

In their meta-analysis on the EO-performance relationship, Rauch et al. (2009) find this relationship to be moderate and note that several studies have found the relationship to be non-significant or even negative. To clarify these mixed findings, Rauch and colleagues encourage unpacking and examining the process pathway through which EO drives performance. Because the effects of entrepreneurial actions are manifested as product innovations, innovation is seen as an intermediate step in the pathway (Baker and Sinkula 2009). In fact, the traditional view defines entrepreneurship as the practice of innovating and claims that the rate of innovation is the key element that distinguishes entrepreneurial from non-entrepreneurial firms (Drucker 1985). Baker and Sinkula (2009) argue that EO's effect on firm performance may be mediated by the ability of the firm to develop innovations: "A strong EO leads to the pursuit of new opportunity, which can lead to profitability, but only if it is realized through innovation success" (p. 445). In turn, the impact of innovation on sales as well as on financial and stock-market performance is widely recognized (Damanpour 1991; Han, Kim, and Srivastava 1998; Pauwels et al. 2004; Rubera and Kirca 2012). In sum, there is sufficient support for the argument that innovation may play an important role in EO's influence on firm performance.

Marketing Capabilities

Firm capabilities are complex bundles of resources, knowledge, and skills that enable the firm to effectively utilize and deploy their asset base for competitive advantage (Day 1994; Teece, Pisano, and Shuen 1997). The asset base is comprised of both tangible and intangible firm resources like property, technology, brands, knowledge, channels, and customer relationships; while the firm's capabilities aid in combining and collectively utilizing these resources by embedding them in the organizational processes (Srivastava, Shervani, and

Fahey 1999; Helfat et al 2007). Following these, marketing capabilities has been defined as the processes by which marketing resources, skills, and knowledge are acquired, combined, and transformed into value offerings for customers (Vorhies and Morgan 2005, Day 2011).

Drawing arguments, primarily from the resource-based view (RBV) and its extended dynamic capabilities (DC) view, marketing capabilities has been associated with business strategy (Vorhies, Morgan, and Autry 2009), market orientation (Morgan, Vorhies, and Mason 2009) as a complementary asset in driving business performance (Morgan 2012). Extant literature has classified marketing capabilities into architectural marketing capability (AMC) and specialized marketing capability (SMC). Such classification is based on the hierarchical nature of capabilities in general (Grant 1996), indicating that AMC is focused on strategic issues while SMC is focused on tactical issues. Specifically, AMC facilitates collection of market information, development of strategic plans based on that information, and coordination and communication of these plans within the firm for proper allotment of resources needed for achievement of the planned objectives; SMC facilitates marketing's task or functional specific activities like pricing, product development, promotion, and distribution that champion the execution of product-market goals of the firm in the marketplace (Morgan 2012).

However, studies examining such delineation have directed their attention almost exclusively on linking these capabilities with performance variables like firm profitability and growth (Morgan, Slottergraaf, and Vorhies 2009), largely ignoring the dynamic nature of these capabilities and their role in leveraging and integrating existing firm's resources for driving innovation and competitive advantage (Day 2011).

Conceptual Framework

In this study, we integrate these two streams of literature using the value creation/capture framework provided by Lepak, Smith, and Taylor (2007). Following Teece's (1986) landmark article on profiting from innovation, we term the 'EO to innovation to performance' path as the "innovation pathway to profitability" and make two key improvements using the value framework. We associate the path from EO to innovation as 'value creation for the customer' and the path from innovation to performance as 'value capture for the firm.' Making this separation will enable the identification of firm level factors that could support or hinder each of these pathways and thus the effectiveness of a firm's EO. Second, while extant studies have provided piecemeal (see Table 1) testing of the two paths, we offer a simultaneous test of the complete pathway.

In what follows, we provide hypotheses on how AMC plays a leveraging role of value creation in the EO-innovation link and how SMC plays a leveraging role of value appropriation in the innovation-profitability link (Figure 1 shows the conceptual framework). The framework addresses three questions concerning the pathway; first, what is the nature of the relationship between EO and innovation: Is the relationship linear or curvilinear? Second, is the 'pathway to profitability' always significant? Third, does strengthening of the firm's marketing capabilities have significant implications for the pathway?

--- Please insert Table 1 & Figure 1 here ---

Hypotheses Development

EO and Innovation

Beginning with Drucker (1985), a myriad of scholars have noted innovation as the key attribute to entrepreneurial behavior. Risk taking, innovativeness, and proactiveness encompass EO (Miller 1983, 2011). Examining the relationship between EO and innovation, we argue that the relationship is likely to be curvilinear, positive up to a certain level of EO

but negative beyond a certain point. On the positive side, innovativeness enhances the firm's willingness to venture into new arenas and provides a strong capacity to regenerate existing product offerings. This heightens the firm's pursuit of new ways to serve customers through development of new products. Proactive nature engenders a culture of vigor to outperform competitors, which speeds up the firm's ability to rapidly cater to the newer needs of customers. In turn, this increases the likelihood that the firm would initiate strategic actions that would enable it to be a pioneer in serving customers' new needs and gain first mover advantage (Conant, Mokwa, and Varadarajan 1990). Risk taking ability enhances the firm's willingness to experiment with newer ideas and learn from failures. Such willingness to experiment without fear-of-failure is a critical capability for actively serving the changing needs of the marketplace (Day 2011). Moreover, risk taking firms are willing to allocate substantial resources to handle uncertain consequences of creative actions which subsequently increase their speed of introducing new products and ideas (Eisenhardt 1989). Put together, we can argue that higher levels of EO contribute to higher levels of innovation.

On the negative side, EO is a resource intensive endeavor. The cost of the firm's critical resources that it consumes may exceed the benefits that are derived from its use (Miller 1983, Tang et al. 2008). First, adopting a consistently proactive position in the market is likely to be costly and risky. The aggressive actions the firm takes to outperform competitors may not only need additional resources, but also may not be successful.

Similarly, constant bold initiatives to risk new ideas and experiments can overshoot cost of commitment to such actions beyond fruitful returns. Second, the firm might lose managerial attention to innovate due to complexities arising from too many opportunities to be served in a newer way (Yli-Renko and Janakiraman 2008). This is particularly relevant for SMEs

which have limited managerial resources yet compelling tendencies to serve wide and diversified set of newer customer needs. Third, firms very high on EO try to be leading edge and commit themselves to bold initiatives thereby tending to be more product-focused rather than customer-focused. Such tendencies may yield products that are technologically sophisticated but which may require additional customer education to enable appropriation of inherent value (Lukas, Whitwell, and Heide 2013). Overall, costs or expenditures increase when firms tend to be heavily entrepreneurially oriented leading to lesser innovation.

Given these contrasting arguments, moderate EO is likely to be optimal. Higher EO improves a firm's ability to sense new opportunities and experiment with new ideas ahead of the competition. However, higher EO also taxes firm's limited resources. Conversely, lower EO reduces a firm's capacity to innovate but safeguards resources. Thus, we argue that a moderate level of EO is likely to produce the highest number of innovations. Thus, we propose:

H₁: There is an inverted U-shaped relationship between firm EO and innovation.

Moderating Role of Marketing Capabilities

As we noted previously, marketing capabilities aid in purposeful enactment of firm strategic initiatives through reconfiguration of firm resources (Day 1994). Thus, these capabilities act as glue in bringing together tangible and intangible assets to be deployed advantageously, providing customer value. In this study, we view these capabilities as catalytic processes in a broader sense, catering both to value creation by augmenting innovations (Srivastava, Shervani, and Fahey 1999) and value appropriation by orchestrating commercial value from innovation which drives profitability (Teece 1986). Specifically, we consider the role of architectural marketing capabilities (AMC), viewed as planning-related processes involved in

formulating strategic marketing goals, gathering market-intelligence, and coordinating available knowledge and other resources for transforming these into value offerings for customers (Morgan 2012), as value creating mechanisms. And, we consider the role of specialized marketing capabilities (SMC), viewed as marketing's functional processes around the classical "marketing mix" activities of product, promotion, pricing, and distribution for implementing the above strategic goals by deploying the value offerings in the market place (Morgan 2012), as value appropriating (or capturing) mechanisms.

Role of AMC. Drawing on this capabilities perspective, we propose that AMC may not affect a firm's innovation output by itself; rather it may enhance the value of entrepreneurial orientation to innovation. We argued above that the EO provides the firm with an ability to enhance innovations while at the same time costing firm's critical resources when exceeded beyond an optimal level. A strong AMC will enhance the positive effect of EO and simultaneously suppress the downside of EO by sustaining resource expenditures in a balanced manner. Hence, when AMC is high, strong EO leads to a higher optimal level of innovation and provides a monotonically increasing effect on innovation beyond the optimal level.

First, AMC provides information about customer needs, competitor activities, market trends and opportunities. Such market intelligence complements EO to innovate by introducing market-facing innovations that are mostly likely to succeed. In addition such information aid the firm in conducting strategic experiments to innovate with less risk of failure and a better chance of market acceptance, thus facilitating deployment of resources in a more market-focused and effective manner. Customer information and market-trends keep a check on the firm's EO in a way that does not over-consume resources and also by being

ahead of time or overprovisioned. For instance, Sony's blue ray disk, introduced a decade ago, was ahead of its time, resulting in a costly deferred acceptance. Second, AMC facilitates achievement of EO and marketing goals by coordination of knowledge and necessary resources within the firm. In Day's (1994) parlance, AMC is first an '*outside-in*' process in scanning market needs, and second a '*spanning*' process in internal coordination of firm's capabilities. A combinative aptitude in bringing together EO, market information, and subsequently coordinating internal knowledge and capabilities improves the quality and timeliness of innovations that meet customer value. Overall, the aggressive posture of EO to innovate, complemented with AMC, reduces the gap between market needs and a firm's ability to innovate, thereby strengthening innovation outcomes (Day 2011).

Thus, a strong AMC complements the firm's execution of their EO to innovate, while at the same time reducing uncertainties in terms of inefficient or excess resource allocation. As a consequence, the innovative outcomes of EO strengthen, while inefficiencies of excess EO weaken, as a firm's AMC strengthens. Thus:

H₂: The effect of EO on innovation is higher at higher levels of AMC than at lower levels of AMC.

Role of SMC. Consider next the value appropriation component in the conceptual model. How does SMC influence profiting from innovation? If a firm's SMC is low, the take-to-market capabilities of the firm are weak, thus hampering the ability of the firm to extract value from the innovations generated through EO and AMC. Firm's with low SMC face challenges in commercializing the value potential hidden in innovation. Value extraction is crucial for firms and current literature leans favorably towards it in comparison to value creation for performance benefits (Vorhies, Orr, and Bush 2011; Mizik and Jacobson 2003).

Research also supports lack of marketing expertise as a primary reason for failure in commercializing innovations (Song and Parry 1997).

Extracting value resides solely with marketing's core functions of the classic marketing mix (Morgan 2012). A strong SMC facilitates the processes involved in pricing, distribution, promotion, and communication of innovative products, thereby completing the transformation of market inputs into customer value, resulting in economic benefits for the firm. Though a strong value potential resides within the firm, in terms of customer facing innovations created by the confluence of EO and AMC, the ability to achieve economic benefits depends on how those innovation are ultimately placed in the hands of the customer. Firms take it for granted that customer facing innovation triumphs by itself, while recent meta-analysis by Rubera and Kirca (2012) show only moderate levels of a relationship between innovation and firm performance. The lacuna could be explained by the missing role of SMCs. Thus, as SMC increases, the ability to promote innovations and position them in the minds of the customers improves, and the ability to effectively channel the innovative products from production house to the market increases, which all aid in the effective commercialization of innovations. Thus,

H₃: The effect of innovation on firm performance is higher at higher levels of SMC than at lower levels of SMC.

Pathway to Profitability: Moderated Mediation. Considering hypotheses 1, 2, and 3, it appears that innovation mediates the effect of EO on firm performance. As seen in Table 1, investigation of innovation being the mediating mechanism through which strategic initiatives lead to firm performance is primarily done in a piecewise or two component models. Specifically, firm level antecedents have been shown to impact innovation outcomes and subsequently such innovation outcomes impact performance variables. However, studies

directly investigating the mediating innovation pathway are limited and mixed. Han, Kim, and Srivastava (1998) show weak support of innovation mediating the customer orientation (one component of market orientation concept) effect on performance. However, Noble, Sinha, and Kumar (2002) fail to find support for innovation mediating the relationship between strategic orientation and performance. The solutions to these mixed findings may not rely on identifying different drivers to innovation, but by perusing the conditions under which innovation acts as a undercurrent in firm profitability. This is quite evident as Vincent, Bharadwaj, and Challagala (2004) concluded from a meta-analysis that innovation may only be a partial mediator between strategic variables and performance.

EO being a strategic posture focused on entrepreneurial actions and processes for innovation, EO's effect on performance could well be mediated by innovation (Baker and Sinkula 2009). The vast literature on the relationship between EO and firm performance provides a comprehensive conclusion that the effect of EO on firm performance is moderately large (meta-analysis by Rauch et al 2009 based on 14,259 companies). Arguments provided by the authors for this relationship clearly highlight the intervening innovation outcomes in this relationship (Miller 1983; Lumpkin and Dess 1996; Wiklund 1999). The crux of these arguments is that each of the three components of EO are innovation facing. First, innovativeness represents the firm's tendency to be creative, and novel in processes and actions that drives new product introduction. Second, proactive stance urges the firm to be forward-looking and sensing market opportunities ahead of time and competitors to enjoy first mover advantage. Third, risk taking motives facilitate the firm to invest resources in unknown projects thereby boldly venturing into uncertain and completely new ventures. These have been collectively presented in extant studies as the logic in driving

firm's competitive advantage reflected in improved financial results. However, studies have rarely explored actual innovation outcomes as the intermediary mechanism channeling firm profitability.

We argue that though extant studies provide convincing arguments that innovation is the logical mechanism through which EO leads to performance, it is pertinent to explicitly investigate innovation as an outcome and pathway to performance; (1) to understand the complexities involved in EO leading to innovation (hypotheses 1 and 2) and (2) to understand how and under what condition such pathway enacts to be profitable. We now focus on the arguments for the latter here. As argued by the RBV and dynamic capabilities literature, competitive advantage derives not just from resource-picking or possession alone, but from integrating these resources with available strategies, assets, and knowledge (Helfat et al. 2007). While previous hypotheses argue that such complementarity is derived through the commingling of EO with AMC, and subsequently innovation with SMC, these might not comprehensively provide imperfect imitability and rarity, the sources of competitive advantage to the firm. A 'true' orchestration of challenges to copying, imitating, and/or substituting by competitors comes through the integration of both these capabilities in the innovation pathway to performance. Such a complex confluence is indeed rare, firm-specific, and nearly impossible to be mimicked by competitors. Firms which truly understand and appreciate this complementarity of marketing capabilities in the innovation pathway enjoy significant competitive advantage and are able to sustain it over time. This holistic view significantly strengthens current theoretical notions on marketing's role in the innovation pathway to performance. Marketing capabilities, AMC and SMC, play independent value creation and capturing roles, respectively, yet have interdependent roles in the innovation

pathway to performance. From a managerial standpoint, marketers need micro-managerial action points in knowing what strategies facilitate value creation/appropriation, while at the same time addressing concerns about the relevant conditions which make this happen as it affects resource allocation (Reibstein, Day and Wind 2009).

Figure 1 depicts that the pathway to profitability (innovation mediating the effect of EO on firm performance) is moderated by both AMC and SMC. Stated in empirical terms (Preacher, Rucker, and Hayes 2007), the indirect effect of “EO to innovation to performance” is stronger at higher levels of AMC and SMC but weaker when AMC and SMC are low. Thus,

H₄: The mediated effect of innovation on the relationship between EO and firm profitability will be stronger when AMC and SMC are high than when they are low.

Methods

Data Collection, Sample Description, and Measure Assessment

Data Collection. The data for this study is based on a large scale cross-firm survey conducted among small and medium manufacturing firms (SME) in India. Innovation through entrepreneurial actions is paramount for SME’s survival and growth (Ramachandran and Ramnarayan 1993). We selected a random sample of 900 manufacturing firms from the Indian Chamber of Commerce Industry Directory. These firms were situated across five major cities in India, namely Delhi, Chennai, Hyderabad, Bangalore, and Mumbai. The initial list of companies was prepared by selecting firms classified under Section C – manufacturing industry of the ‘National Industrial Classification (NIC)’. NIC (2008) is based on international standard industrial classification (ISIC) and is prepared by the ‘Central Statistical Organization (CSO)’ of the Ministry of Statistics and Program Implementation of

the Government of India. The Ministry classifies SMEs as firms with 100 to 500 employees. Table 2 shows the sample composition of participating firms.

--- Please Insert Table 2 about here ---

We followed the suggestions of Hoskisson et al. (2000) for administering surveys in emerging economies by collaborating with local researchers. A national marketing research firm was utilized to administer the survey using experienced interviewers for conducting on-site interviews. The questionnaire was initially pretested with 11 CEOs and 11 vice-presidents (VPs) and the final survey was prepared based on feedback from the pretest sample. The interviewers made initial appointments by phone and met the CEOs and VPs of firms personally to gather survey responses. While CEOs are definitely key informants within firms, we validated whether the VPs were confident, knowledgeable, and involved with firm level strategies using three 7-point scale items as recommended by Kumar, Stern, and Anderson (1993). From the initial pool of 900 firms, we dropped 137 firms that had less than 100 employees and 114 firms with greater than 500 employees, leaving a final pool of 649 firms. Of these, 247 firms refused to participate in the study; however we were successful in persuading 154 of them to provide basic information like employee size and industry type for use in a non-response bias test. Ultimately, we obtained 201 usable questionnaires, for a response rate of 31 %.

General measurement approach. We employed three steps at the design stage of survey development to avoid potential biases with regards to data collection efforts. First, we collected data from two key informants in each firm, the CEO and VP of marketing, such that data for directly related constructs in our model was not provided by the same key informant. Second, we collected objective data for the intermediate (mediating) dependent variable and

ultimate firm performance dependent variables. Finally, we collected data on performance variables one year after the primary survey was deployed for use in robustness analyses. As an additional step, the survey questions employed different formats, including semantic differential, likert-type, and objective measures to avoid boredom and/or monotonous response behavior.

Tests for non-response biases. We used multiple methods to test for non-response biases. First, following Armstrong and Overton (1977), we tested for non-response bias by comparing early and late responding firms on key firm characteristics such as number of employees, sales, and age. None of these indicators differed at the $p < .05$ level. Second, we compared participating firms and nonparticipating firms based on industry type and number of employees. No significant differences were found. The sample covered companies from a broad spectrum of industries manufacturing a wide range of products (cf. Table 2).

Measure development. We relied on existing scales to capture entrepreneurial orientation (Covin and Slevin 1989), architectural marketing capabilities (AMC), and specialized marketing capabilities (SMC) (Vorhies and Morgan 2005). The VP of marketing provided responses for the entrepreneurial orientation scale; this scale captures the extent to which a firm is innovative, risk taking, and proactive. AMC was captured using four items, and SMC was measured using seven items. AMC indicates the firm's propensity to be externally focused in understanding opportunities presented by the environment; it also signals the use of such information in the strategic plan of the firm for customer value creation. SMC captures the extent to which a firm has the capacity to transform value created through innovation to better firm performance. It is focused on marketing activities

that enable this translation. Appendix A lists the actual line items and the sources of these scales.

Several objective data were collected for the dependent variables, either from the company's records or self-reported by the CEOs. Specifically, innovation was captured using the total number of new products developed annually. Extant literature considers the count of number of new products to be a robust measure of innovation (Yli-Renko and Janakiraman 2008; Katila and Ahuja 2002; Damanpour 1991). We used annual sales and profits gathered during the first deployment of the survey as firm performance dependent variables. We went back to the firm one year later to collect similar objective data to be used in robustness checks of causality.

Control variables. The choice of control variables was based on the relevance to firm characteristics and firm innovation. Firm size and firm age were used as controls for new product and performance models. Additionally, average R&D intensity, number of new business lines, and number of manufacturing innovations in the last 5 years were controlled in the new product model. The number of competitors was controlled for in the performance model.

Construct validity. We used MPlus 7 (Muthén and Muthén 1998-2012) in assessing the psychometric properties of the three multi-item constructs using confirmatory factor analysis (CFA). CFAs for all the three constructs were run simultaneously with the constructs freely allowed to correlate for evaluating a measurement model. Following recommendation by Coffman and MacCallum (2005), construct items were parceled using randomized item parceling as parceling minimizes any loss of information in the latent factors, improves model fit, increases communalities, increases indicator reliability, and diminishes effects of

any non-normal, continuous indicators. The model fit statistics are: $\chi^2(24) = 35.33$; CFI = .98; TLI = .98; RMSEA = .049. The standardized factor loadings of items were significant at $p < .01$ and greater than 0.7. As Table 3 shows, the composite reliabilities, average variance extracted (AVE), and the Cronbach's alphas for the constructs are above the cut-off values recommended by Bagozzi and Yi (2012). Further, the AVE of the constructs exceeded the squared inter-construct correlations showing evidence of discriminant validity (Fornell and Larcker 1981). Overall, the fit indices of the measurement model along with the psychometric properties of the constructs provide evidence for strong measurement quality.

--- Please Insert Table 3 about here ---

Models

Two models represent the conceptual framework. First, the innovation model investigates the relationship between entrepreneurial orientation and the number of new products produced by a firm, moderated by the firm's architectural marketing capabilities. Second, the overall firm performance model considers the impact of the number of new products produced on performance outcomes, moderated by specialized marketing capabilities. We also test the overall conceptual framework, combining the two models and conducting a moderated mediation analysis. Specifically, we analyze whether the mediating effect of innovation on the EO → firm performance relationship is conditional on the levels of the firm's architectural and specialized marketing capabilities.

Innovation Model

Since innovation is operationalized as the number of new products launched, a count data model is appropriate. Over-dispersion (i.e. variance greater than the mean) is common in microeconomic models (Greene, 2003), suggesting that a negative binomial distribution is superior to a Poisson distribution in modeling the number of new products for those firms

actively attempting to innovate . A negative binomial model will accommodate more zeros in the data than will the Poisson, but may not account for all excess zeros in the data. Some firms in the dataset may not actively be attempting to innovate during the study period, producing a zero count for new products, distinct from a zero count produced by a negative binomial random variable. The inclusion of small firms in our sample logically suggests some may not be attempting to innovate during a particular period, therefore we also account for this possibility and specify a zero-inflation negative binomial (ZINB) model (Dotzel, Shankar, and Berry 2013; Long 1997). Specifically, the ZINB model accounts for excess zeros in the data due to some firms not attempting to innovate (the zero-inflation part), as well as for excess zeros even for those that are trying to innovate due to heterogeneity across firms (the negative binomial part). We further parameterize the model by assuming that the probability associated with the zero-inflation portion of the model is a function of the firm's number of new business lines (BL) and the number of manufacturing innovations (MI), with the expectation that the greater the number of new business lines and manufacturing innovations, the lower the probability of the firm producing no new products. Therefore, the ZINB density of the number of new products (Y) is

$$\Pr(Y = y_i | x_i) = \begin{cases} (1 - \pi_i) + \pi_i u_i^{\theta_i}; & \text{if } y_i = 0 \\ \frac{\pi_i \Gamma(\theta_i + y_i)}{\Gamma(\theta_i) \Gamma(y_i + 1)} u_i^{\theta_i} (1 - u_i)^{y_i}; & \text{if } y_i > 0 \end{cases}, \quad (1)$$

where Γ represents the gamma distribution,

θ_i is the binomial distribution dispersion parameter,

$u_i = \theta_i / (\theta_i + \lambda_i)$,

$\lambda_i = \exp(\beta_0 + \beta_1 * EO_i + \beta_2 * EO_i^2 + \beta_3 * AMC_i + \beta_4 * EO_i * AMC_i + \beta_5 * size_i +$

$\beta_6 * age_i + \beta_7 * R\&D_i)$, and

$$\pi_i = \frac{\exp(\delta_0 + \delta_1 BL_i + \delta_2 MI_i)}{1 + \exp(\delta_0 + \delta_1 BL_i + \delta_2 MI_i)}.$$

Firm Performance Model

Firm performance (FP), is modeled as a linear joint function of innovation and SMC of the firm.

$$FP_i = \gamma_0 + \gamma_1 * NP_i + \gamma_2 * SMC_i + \gamma_3 * NP_i * SMC_i + \gamma_4 * size_i + \gamma_5 * age_i + \gamma_6 * comp_i + \varepsilon_i. \quad (2)$$

Analysis and Results

Innovation (INN)

Table 4 (NP model results) shows the estimated parameters for the ZINB innovation model. The hypothesized inverted-U effect of EO on INN is significant ($\beta_1 = 0.22 > 0$, $p < .01$; $\beta_2 = -0.21 < 0$, $p < .01$), consistent with H₁. We also find that the interaction between EO and AMC is significant and positive (.30, $p < .05$) in support of H₂. Among the control variables, R&D intensity, number of business lines, and number of manufacturing innovations were significant. For the specified zero-inflation parameter, the results indicate that the number of new product lines had a significant negative effect on the probability of observing zero new products (-.94, $p < .01$), but the number of manufacturing innovations was not significant.

---Please Insert Table 4 about here---

We show the moderating effects of AMC more clearly by plotting the interaction effects. In Figure 2 (Panel A), we show the inverted-U shaped relationship between EO and INN for low level, mean level, and high levels of AMC. As the plot indicates, at high levels of AMC, the curvilinear effect tends to be reduced, and seems to be approaching a monotonic increasing trend. For low levels, the curvilinear effects are more pronounced. In sum, AMC not only raises the optimal level of EO's impact on INN but also aids in nullifying the

decreasing effect of EO on INN beyond a threshold and hence provides a sustained value creation mechanism.

Although number of new products represents a good proxy for innovation Yli-Renko and Janakiraman (2008) make an important note that a count variable may adequately address quantity, but not quality of innovation. Hence, in an attempt to account for quality we measured the innovative capability of the firm using six items (CEO responses) from Subramaniam and Youndt (2005). These items capture both the incremental and radical component (three items each) of the general innovative ability of the firm respectively: (1) “Innovations that strengthen your existing product/ service lines”; (2) “Innovations that strengthen your expertise in existing products/services”; (3) “Innovations that strengthen how you currently compete”; (4) “Innovations that result in significantly superior products/services”; (5) “Innovations that result in products/services that are significantly different from your current products/services”; and (6) “Innovations that require your firm to acquire new technical/marketing skills” ($C_\alpha = .78$). We then create a new variable, NPIC by multiplying number of new products with innovative capability. Essentially we develop a proxy measure for quality of innovation as the number of new products weighted by the firm’s innovative capability. As NPIC is censored with a lower bound of zero, we specify the innovation model for quality using Tobit regression. Inferences using the Tobit model estimates resulted in no substantive changes as compared to those based on the ZINB analysis (see Table 4 quality model). The squared EO^2 term and the interaction $EO*AMC$ term remained significant. Further analyses, using both incremental and radical capability, rather than overall innovative capability, yielded similar results, with the interaction term significant in both cases ($7.09, p < .10$; $6.79, p < .10$), respectively. All Tobit models

converged in less than forty iterations using quasi-Newton optimization. Overall, the INN model results provide a clean and robust support to hypotheses H₁ and H₂.

Firm Performance

Table 5 shows the estimation results of the performance model, with both profit and sales as dependent variables (nominal and growth). For profit, the interaction effect of NP and SMC is significant and positive (.18, $p < .01$) in support of H₃. When SMC is at the mean, NP has no effect on profit. Among the control variables, firm size and number of competitors were significant. The substantive results are similar for the sales model, and both the profit and sales growth models.

---Please Insert Table 5 about here---

Pathway to Profitability -- Moderated mediation

The results from the tests of our innovation and profit models above suggest that the pathway to profitability, from EO to firm performance, is mediated by innovation, but only conditionally, depending on the marketing capabilities of the firm. We directly test the mediation shown in Figure 1 by estimating a moderated mediation model, using MPlus, and following the steps recommended by Preacher, Rucker, and Hayes (2007). Specifically, we test whether the indirect effects of EO on firm performance through innovation is contingent on the levels of AMC and SMC. Note that the distribution of the mediating variable is zero-inflation negative binomial, while the performance outcome variable is assumed to be distributed normal. We further include the non-linear effect of EO by adding the squared term, and also use the number of new business lines and manufacturing innovations to predict the zero inflation parameter. MPlus provides a powerful environment to test such a model, allowing variables with different distributions and higher order effects to appear in a

single path model. The results (see Table 6) indicate that there is not an unconditional mediating effect of innovation on the EO → performance link. The indirect effect was found to be insignificant using Sobel's test, implemented by multiplying the parameter estimates of the EO → innovation, and innovation → firm performance links. The insignificant mediating pathway is the first necessary step in moderated mediation (Preacher, Rucker, and Hayes 2007). Next, we probed the indirect effect to be dependent on the low, mean, and high levels of the moderating variables AMC and SMC. High (low) levels were obtained by adding (subtracting) one standard deviation to the mean levels of the moderators. Specifically, referring to equations 1 and 2, the conditional indirect effects are (cf. p. 203 Table 1, model 4 in Preacher, Rucker and Hayes 2007):

$$\text{High levels of moderators} = (\beta_1 + \beta_4 * (\text{AMC} + 1 \text{ stdev})) * (\gamma_1 + \gamma_3 * (\text{SMC} + 1 \text{ stdev}))$$

(3)

$$\text{Low levels of moderators} = (\beta_1 + \beta_4 * (\text{AMC} - 1 \text{ stdev})) * (\gamma_1 + \gamma_3 * (\text{SMC} - 1 \text{ stdev})),$$

(4)

where, AMC and SMC are the mean levels of architectural and specialized marketing capability respectively, and *stdev* = standard deviation.

The indirect effect was significant at high levels of both AMC and SMC (.104, $p < .05$), but was insignificant both at the mean levels and low levels of the moderators, thus supporting the moderated mediation hypothesis, H4. This adds strength to our argument that innovation is a missing link to the EO → performance relationship only at high levels of value creating and value appropriating marketing capabilities. We show these complex relationship more clearly by plotting (Figure 2, Panel B) the 'pathway to profitability' in a three dimensional space across values of AMC and SMC.

---Please Insert Table 6 and Figure 2 about here---

Endogeneity Checks and Robustness Analyses

In the innovation model, EO may be an endogenous variable because an increase in innovation could cause the firm to be more proactive and willing to take risk to be innovative. To investigate this issue, we ran a Wu-Hausman test. We first estimate using all exogenous variables:

$$\begin{aligned} \text{EO} = & \alpha + \beta_1 * \text{AMC} + \beta_2 * \text{SMC} + \beta_3 * \text{firmage} + \beta_4 * \text{firmsize} + \beta_5 * \text{R\&Dintensity} \\ & + \beta_6 * \text{noofcompetitors} + \varepsilon_1. \end{aligned} \quad (5)$$

We save the residual from the above regression (res) and include it in the main INN model,

$$\begin{aligned} \text{LN(INN)} = & \alpha + \beta_1 * \text{AMC} + \beta_2 * \text{EO} + \beta_3 * \text{firmage} + \beta_4 * \text{firmsize} + \beta_5 * \text{R\&Dintensity} \\ & + \beta_6 * \text{noofcompetitors} + \beta_7 * \text{EO}^2 + \beta_8 * \text{EO} * \text{AMC} + \beta_{\text{res}} * \text{res} + \varepsilon_2. \end{aligned} \quad (6)$$

The null hypothesis indicating that EO is exogenous is $H_0: \beta_{\text{res}} = 0$. As shown in Table 7, we fail to reject the null hypothesis as β_{res} is statistically insignificant ($p = .24$). This implies that endogeneity is likely not a concern.

Second, we collected additional data for the firm performance variable one year ($t=1$) after the initial survey was conducted ($t=0$). As shown in Table 6, no substantive changes occurred when the moderated mediation (.114, $p < .05$) was tested at $t=1$. Overall, these results strengthen the causal evidence from our initial estimations and provide a stronger evidence of the complex yet a stunning role of marketing capabilities in the firm's innovation pathway to profitability.

Discussion

The objective of this study was to contribute to a broader discussion of the relationship between strategic orientation and marketing capabilities. We proposed and tested a 'pathway to profitability' model with a nuanced chain of linkages between firms' entrepreneurial

orientation (EO), marketing capabilities, innovation, and profitability. The results indicate that: (1) EO has a curvilinear relationship with innovation following an inverted U-shaped pattern, (2) architectural marketing capability (value creating lever) moderates this curvilinear effect in a favorable manner by reducing the curvilinearity and enabling EO's impact on innovation to be more monotonically increasing, (3) specialized marketing capability (value capturing lever) positively moderates the impact of innovation on firm profitability, and (4) the mediating effect of EO on profitability through innovation is contingent (moderated mediation) on the levels of both architectural and specialized marketing capability. Together, these complex effects have interesting implications for literatures on strategic orientation, marketing capabilities, and value creation/capture.

Theoretical Implications

Strategic Orientation. Most research on strategic orientation of the firm that are based on the resource based view and/or source-position-advantage framework (Day 1994) capture the performance-effects of market orientation (MO), entrepreneurial orientation (EO), learning orientation (LO), and technological orientation (TO), or combinations/synergies of these on firm and new product performance (Baker and Sinkula 1999; Zhou, Yim and Tse 2005; Matsuno, Mentzer and Ozsomer 2002; Han, Kim and Srivastava 1998). While these studies are salient in clearly pointing the pathway to profitability – strategic orientation to innovation to firm performance, recent studies have called for investigating (a) more nuanced associations between these constructs and (b) the leveraging role of value adding firm capabilities (Morgan 2012, Vorhies, Morgan, and Autry 2009). The present study addresses this call.

The inverted U-shaped relationship between EO and innovation in this study indicates that the association between a firm's strategic orientation and innovation is not linear. EO is a resource consuming endeavor (Miller 1983); it appears that increased focus on EO will enhance innovation only to a certain degree. In other words, EO's impact on innovation encounters diminishing returns. The study examined this issue further and tested if other firm capabilities could mitigate the diminishing returns to EO. Proponents of RBV and capabilities literature have long stressed the limits of static resource possessions and suggested that true orchestration of value derives from reconfiguring and co-mingling of resources with other capabilities. It should be noted that such limiting effects have also triggered research asking the question if a strategic orientation like MO is a true source of competitive advantage (Kumar et al. 2011). We argue that the limiting effects are indeed natural for such resource consuming activities of the firm and that firms need supporting capabilities as leverage to generate performance effects in a sustainable fashion. We attempt and show one synergistic co-mingling of EO with marketing capabilities. Future research could take a similar trajectory in investigating how resources could be balanced by complementary capabilities. It is a fact that such nuanced effects are extremely critical to entrepreneurial firms which tend to look for early profits. Hence to answer 'what does it take to enjoy perennial performance effects of EO and likewise other strategic orientations?' we tap into the strength of the firm's capabilities.

Marketing Capabilities. The study's results have significant implications for marketing capabilities literature. We frame the two key marketing capabilities – architectural and specialized (Vorhies and Morgan 2005)—within the value creation/capture framework proposed by Lepak, Smith, and Taylor (2007). We link architectural capabilities with value

creation; we suggest (and show) that EO will have more value and exhibit greater rarity and inimitability when it is supported by architectural capabilities that are built into organizational processes and routines than when it is used in isolation. Such a dynamic capability contributes to creation of value through innovations. We link specialized capabilities with value appropriation; we suggest that more value can be extracted from EO driven innovations when they are supported by specialized capabilities that facilitate better targeting, positioning and marketing of those innovations. One advantage in delineating the effects this way is that it answers the question: how do firm-specific complex resource bundles in terms of strategic orientation (here specifically EO) contribute to sustained value for the firm? The answer is that it does so by leveraging the two marketing capabilities. Further, our conceptualization of the differing role of the two capabilities is unique and enables us to extend the marketing capabilities literature in a new way. Till date empirical investigations have examined either the independent or the synergistic impact of the two marketing capabilities on product performance and subsequently firm profitability (Morgan 2012; Vorhies and Morgan 2005, Morgan, Vorhies, and Mason 2009). Such a treatment confounds the process of value creation with the process of value extraction. We remove this confound by suggesting that the source that creates a value may or may not be appropriate for extracting that value in the long-run. We test (and show) that while AMC is useful for value creation, SMC is useful for value extraction. Our conceptualization of bifurcating marketing capabilities based on value creation and capture provides a handle to view these capabilities as being dynamic. Firms which are entrepreneurially oriented are naturally competitively aggressive and willing to take risks; and with suitable capabilities to sense the market place and customer needs, rapid reconfiguration of resources for innovation could occur. This will

be translated into sustainable competitive advantage to the firm by using SMCs to transform the “innovation” outputs and maximize exchange value offered by customers. Together, these results provide initial evidence to our understanding of “how” firms transform resources to create value to customers and extract/realize commercial benefits from the value potential so created using dynamic marketing capabilities.

Managerial Implications

The findings of the study have important managerial implications in four areas relating to EO and its effects. These include (1) EO’s impact on innovation output of the firm, (2) the mediating role of innovation in the EO-firm performance relationship, (3) the moderating role of marketing capabilities—AMC and SMC—on the mediation pathway, and (4) the relative importance of the two marketing capabilities and EO for firm performance and impact on resource allocation.

EO and Innovation: The findings suggest that improving EO leads to better innovation outcomes, albeit at a diminishing rate, for SME firms. There is a clear signal for the presence of a saturation point beyond which an increase in EO does not add to the firm’s innovation success. From a managerial perspective, this result calls for firms to have a greater focus on entrepreneurship, but have a good understanding of the limits of outcomes to such a focus. A previous study by Tang et al. (2008), that linked EO to firm performance directly, noted (but did not test) several organizational reasons for diminishing returns of EO, including coordination difficulties, insufficient human capital and role formalization. They suggested that EO’s diminishing returns could be avoided if managers improve coordination among units involved in the innovation process, improve knowledge capital that can help in the innovation process and make employee roles less formalized and more flexible. As

discussed below, there is clear indication that improving knowledge capital can bring about better outcomes for a firm's EO position.

Mediating role of innovation: The pathway to profitability is non-significant at average levels of AMC and SMC; when SMC is at the mean, innovation (and therefore EO and AMC) has no impact on profits (middle line in graph). This result suggests that being EO may not guarantee better firm performance although it may lead to better innovation outcomes. However, we also know that innovation is considered by all as an engine for growth of firms and the economy. The missing link for better firm performance may be the presence of other facilitating conditions. One argument provided in this study is that innovation output provides value potential for a firm; to realize real value from this potential and appropriate income from it, firms will need to invest in value appropriation mechanisms.

Moderating role of marketing capabilities. In the context of appropriating value from innovations, the relevant appropriation mechanisms available to managers are marketing skills that can facilitate proper targeting and positioning of those innovations. However, SMEs have limited resources (Sheth 2011) and consider marketing as peripheral (O'Dwyer, Gilmore, and Carson 2009) to the business function, as growth occurs without much effort in the initial years of an enterprise. The present study tests this managerial bias by use of SMC and AMC as moderator variables. Our findings suggest that innovation is converted to profits only if SMCs are high; when SMCs are low, resources are expended to produce new products (value creation), but firms lack the capability to convert those products to profits (value appropriation).

It should also be noted that the positive impact of SMC on firm performance is unconditional; higher SMC always increases profits, regardless of EO and AMC levels. The

effect of AMC, on the other hand, is conditional. AMC is beneficial only when SMC is high, and in fact, has a detrimental impact on firm performance when SMC is low. These findings suggest that firms should first focus on developing marketing capabilities that can convert innovations into value for the firm. Firms need to develop skills in understanding and targeting customers, deploying a well-trained sales force, effectively managing distribution channels, and effectively differentiating and positioning their product offerings before allocating resources to developing AMC.

Relative Importance of EO, AMC and SMC: The influence of EO on firm performance is conditional on both SMC and AMC. EO drives firm performance positively when both AMC and SMC are high, and shows mixed effects (inverse U-shaped, negative or U-shaped) for other combinations of AMC and SMC (Figure 3). Between AMC and SMC, the effect of AMC on firm performance is conditional on the level of SMC: it is non-negative (i.e. statistically ≥ 0) when SMC is high, regardless of the level of EO; it is non-positive (i.e. statistically ≤ 0) when SMC is low, regardless of the level of EO. In other words, presence of SMCs trumps the presence of either AMCs or EO for the firm.

Overall, these findings suggest a strategic hierarchy in the allocation of resources to develop capabilities; 1) SMC must be in place (i.e. high SMC) to appropriate value from innovation, 2) AMC must be in place (i.e. high AMC) for EO to most effectively create value in the form of innovation. Development of AMC would include enhancing the firm's ability to collect and understand information regarding the markets they serve, and using that information to guide the internal planning of innovation investments and activities within the firm. An exception to the allocation hierarchy described above may be needed for completely new enterprises. Such firms may have few or no products and building SMCs first may be

worthless. Scarce assets in such firms should be allocated to building AMC's early on, and the allocation needs to be shifted more to building SMC's as they establish themselves and start on a growth path. The allocation hierarchy contributes to managerial decision making with respect to making the firm entrepreneurial versus strengthening its marketing skills. Our findings show that the value of entrepreneurship is conditional on the level of marketing skills; i.e., marketing professionalism is a necessary condition for entrepreneurship to drive profits. It should be noted that both are important components of a firm's human stock.

While entrepreneurship enhances value creation through generation of new ideas, innovations, and products; marketing professionalism helps build and extract value from such outcomes. The literature on firm failures indicates that entrepreneurship by itself may be insufficient. These two types of skills compete for organizational resources (Iyigun and Owen 1998). Investment in entrepreneurship is more risky than investment in professionalism. Both do not substitute but rather complement each other in ensuring profitable operations. The present study illustrates that professionalism is relevant for entrepreneurial success of SMEs.

Limitations and Future Research

Our study provides insight into the complexity of the link between EO and firm performance, demonstrating that the relationship is mediated by the process of innovation, but only conditionally, based on marketing capabilities. The study also evaluates the relative roles of entrepreneurship and professionalism in driving firm profits, showing that entrepreneurship is necessary to create value, but that created value is converted to profits only in the presence of professionalism. Our findings are subject to some limitations and suggest opportunities for further research.

In this study, innovation was operationalized as the number of new products developed during the year. Although use of an innovation outcome variable as a mediator is consistent with the literature, other mediators that have more of a process focus could be considered. Future research may examine process concepts such as knowledge creation capability, innovation capability, resource allocation for innovation, reconfiguring capability and organizational structure as potential mediators for EO's impact on innovation and firm performance. Using these concepts may offer more specific recommendations to managers regarding process mechanisms that need to be built into an entrepreneurial firm.

Although use of an innovation outcome variable as a mediator is consistent with the literature, other mediators with a more process-oriented focus could be considered. Future research may examine process concepts such as knowledge creation capability, innovation capability, resource allocation for innovation, and reconfiguring capability, as potential mediators for EO's impact on firm performance. Using these concepts may lead to more specific recommendations regarding process mechanisms that need to be built into an entrepreneurial firm. Our findings are also subject to the environmental conditions present for our sampled market sector, in India, during our study period. We anticipate that the effect of EO (and therefore AMC) would be more pronounced in dynamic environments and that the impact would be attenuated in less competitive environments.

The study sample was based on the manufacturing sector of an emerging economy. The study findings showed that, like in Western economies, entrepreneurship matters for innovation and marketing matters for performance. The companies included in the sample were mostly private encountering similar market and competitive forces as their Western counterparts. The same results may not apply to public companies that are subject to greater

levels of institutional forces in these economies. Future research could examine the value creation and extraction determinants in the non-manufacturing areas as well as in public enterprises. There are also obvious opportunities to test our findings in other industries and markets, as well as in very small or large firms.

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Table 1. Selective studies on Innovation Pathway to Profitability*

Reference	Key Findings	Type(s) of Innovation	Boundary Condition(s)	Outcome Variable(s)	C	A	P	B
Tellis, Prabhu, Chandy 2009	Internal corporate culture (willingness to cannibalize, future market orientation, risk tolerance etc.) strong influencer of radical innovation; radical innovation positively impacts market-to-book ratio	Radical Innovation (RI)		RI, market-to-book-ratio	✓	✓		
Atuahene-Gima 2005	Customer and competitor orientations influence competence exploitation and exploration. Competence exploration positively influences radical innovation.	Incremental and Radical Innovation	Market opportunity, IFC	Incremental, radical innovation performance IAR, PAR	✓			✓
Tsai 2001	Absorptive capacity positively moderates the effect of network position, on innovation achieved rate (IAR) & profitability achieved rate (PAR)	Product	Absorptive capacity		✓			✓
Sorescu, et al 2003	Few dominant firms introduce more radical innovations (RI). Impact of RI on NPV stronger with marketing & technology support (TS).	Market & technological breakthroughs, RI	Mktg & TS, product portfolio	No. of RI, firm NPV	✓	✓		✓
Srinivasan et al 2009	Innovations associated with marketing mix positively impact cash flows which in turn favorably drive stock returns	Product, pioneering innovation		Stock returns		✓		
Zhou, Yim, Tse 2005	Entrepreneurial orientation (amongst other orientations) has positive influence on both technological, market based innovations. Innovations positively influence SBU and product performance	Technology-based, market-based		Innovation, firm, & product performance	✓	✓		
Han,et al 1998	Innovation mediates the effect of customer orientation on firm performance.	Technical, Administrative		Innovation, Firm performance	✓	✓	✓	
Baker Sinkula 2009	Innovation success mediates the effect of entrepreneurial orientation on profitability	General innovation success (Subjective)		Firm perf. (subjective)	✓	✓	✓	
Marinova 2004	Change in market knowledge & shared knowledge moderate the effect of level of market knowledge on innovation and firm performance.	Product	Shared knowledge	R&D investment, Firm market share	✓	✓		✓
Gatignon Xuereb 1997	Impact of innovation depends on complex synergies between strategic orientations (customer, competitor, technological), and market characteristics (MC) & inter-functional coordination (IFC)	Product	MC, IFC	Innovation performance, & characteristics	✓			✓
Terziovski 2010	Innovation strategy & culture, customer & supplier relationships, & technological capabilities positively impact firm performance	Manufacturing (SMEs)		Firm Performance		✓		

Table 1. Continued								
Reference	Key Findings	Type(s) of Innovation	Boundary Condition(s)	Outcome Variable(s)	<u>C</u>	<u>A</u>	<u>P</u>	<u>B</u>
Sorescu Spanjol 2008	Breakthrough innovations impact normal profits, economic returns, risk, and stock return. Incremental innovations only impact normal profits.	Product: Incremental, radical		Firm profits, stock returns		✓		
Slotegraaf Pauwels 2008	Brand equity (BE) strengthens the influence of new product introductions on promotional effectiveness (PE) & sales elasticity (SE) over time	Product	Brand equity	PE, SE		✓		✓
Fang et al 2011	Configuration (depth, breadth) of ‘deep customer-broad innovation’ or ‘deep innovation-broad customer’ influence performance positively.	Technology (patent)	Industry dynamism	Shareholder return, risk		✓		✓
Srivastava, Gnyawali 2011	Technological strength (TS), internal tech diversity (ITD), portfolio tech diversity & quality, portfolio leverage intensity	Technological breakthrough	TS, ITD	Number of Patents	✓			✓
Li Gima 2001	Innovation-performance link depends on environmental, institutional, & relationship factors (strategic alliances (SA) & political networking).	Technology	SA, political networking	Relative firm performance		✓		✓
Present Study	Innovation pathway to profitability is dependent on the levels of architectural (AMC) & specialized (SMC) marketing capabilities	Product (Manufacturing SMEs)	AMC, SMC	Innovation, Firm performance	✓	✓	✓	✓

* Notes: Titles of last four columns: C: Value creation; A: Value appropriation; P: Pathway-to-profitability; B: Boundary conditions

Table 2. Sample Composition & Characteristics

NIC CODE	A. Division Name / Industries	%
27	Manufacture of electrical equipment	16.42
28	Manufacture of machinery and equipment	13.93
29	Manufacture of motor vehicles, trailers and semi-trailers	13.43
25	Manufacture of fabricated metal products, except machinery & equipment	11.94
10	Manufacture of food products	9.95
22	Manufacture of rubber and plastics products	7.96
26	Manufacture of computer, electronic and optical products	5.97
13	Manufacture of textiles	5.47
14	Manufacture of wearing apparel	4.98
	Others	9.95
B. City Sampling		
Delhi: 34.33 %; Bangalore: 21.89 %; Chennai: 20.4 % Hyderabad: 15.42 %; Mumbai: 7.96 %		
C. Annual revenues of the firm in Indian Rupees (INR). [10 Million USD ~= INR. 53 Crores]		
	< 50 Crores	64.2
	50 – 150 Crores	24.88
	> 150 Crores	10.95
D. Number of employees in the firm		
	100 – 250	72.64
	250 – 500	27.36

Notes: NIC = National Industrial Classification (for India). The sampling information is based on a sample of n=201 firms

Table 3. Correlations, Summary Statistics, and Construct Validities

Variables	1	2	3	4	5	6	7	8	9	10	11	12	13
	EO	AMC	SMC	NP	IC	BL	MI	Profit	Sales	Size	R&D	Age	Comp.
1. Entrepreneurial Orientation (EO)	1.00												
2. AMC	.34**	1.00											
3. SMC	.22**	.60**	1.00										
4. No. of new products (NP)	.18*	.19**	.12†	1.00									
5. Innovative Capability (IC)	.27**	.27**	.19**	.10	1.00								
6. No. of new business lines (BL)	.24**	.16*	.11	.58**	.17*	1.00							
7. No. of manufacturing innovations (MI)	.06	.04	-.01	.31**	.14†	.37**	1.00						
8. Profit ^a	.16*	.16*	.22**	.19**	.19**	.12†	.13†	1.00					
9. Sales ^a	.17*	.20**	.24**	.14*	.30**	.16*	.08	.77**	1.00				
10. Firm size ^a	.13†	.07	.12†	.15*	.16*	.26**	.17*	.51**	.70**	1.00			
11. R&D intensity ^a (R&D)	.18*	-.03	.08	.001	-.03	.13†	.14†	.13†	.03	.02	1.00		
12. Firm age ^a (Age)	-.07	-.05	.01	-.06	.08	-.01	.04	.02	.08	.06	-.09	1.00	
13. No. of competitors ^a (Comp.)	.03	-.17*	-.14†	.14*	-	-.08	.001	.09	-.03	-.01	.01	.01	1.00
					.12†								
Summary Statistics (n = 198)	1	2	3	4	5	6	7	8	9	10	11	12	13
Mean	4.72	4.00	3.72	4.96	4.25	9.67	4.52	3.66	59.72	215.76	4.15	24.66	19.07
SD	.89	.55	.52	5.99	.45	9.91	3.46	7.19	68.58	129.58	3.63	13.75	29.64
Minimum	1.89	2.75	2.00	0	2.50	0	0	.18	3.50	100.00	.50	2.00	2.00
Maximum	6.78	5.00	4.86	40	5.00	45	30	75.00	400.00	500.00	20.00	91.00	300.00
Coefficient Alpha	.81	.78	.75	-	-	-	-	-	-	-	-	-	-
Composite Reliability (CR)	.85	.78	.78	-	-	-	-	-	-	-	-	-	-
Average Variance Extr. (AVE)	.65	.55	.54	-	-	-	-	-	-	-	-	-	-

Note: AMC = architectural marketing capabilities; SMC = specialized marketing capabilities. “-” = not available for objective values from company’s records or objective self-reported data. Profit and sales are in Crores of INR (Indian Rupees).

^a Natural log transformed for correlations and further analysis.

** $p < .01$. * $p < .05$. † $p < .10$.

Table 4. Parameter estimates for number of new products model

Dependent Variables:	NP (<i>Quantity</i>)	NPIC (<i>Quality</i>)
Model:	ZINB	Tobit
Independent variables	<i>Coefficient (SE)</i>	<i>Coefficient (SE)</i>
EO	.22 (.08) **	1.19 (2.27)
EO ²	-.21 (.08) **	-4.52(1.89) *
AMC	.09 (.12)	4.67 (3.32)
Interaction		
EO * AMC	.30 (.15) *	6.94 (3.98) †
Zero-Inflation estimates		
Business Lines (BL)	-.94 (.30) **	
Man. Innovations (MI)	-.32 (.24)	
Controls		
Firm size ^a	-.10 (.11)	-.57 (3.29)
R&D intensity ^a	-.16 (.07) *	-1.94 (2.35)
Firm age ^a	-.05 (.10)	-1.67 (2.98)
BL	.04 (.006) **	1.55 (.19) **
MI	.04 (.02) *	1.08 (.52) *
Intercept	1.89 (.63) **	11.36(18.71)
Model Diagnostics		
Dispersion	.35 (.06)	
Log-likelihood	-471.25	-779.49
	$\chi^2/df_{=185} = 1.39$	$\sigma = 22.97 (1.28)$ **

Notes: N = 198; NP = Number (count) of new products;

NPIC = (NP * Innovative capability (IC)) quality of NP.

ZINB = negative-binomial with zero-inflation; Tobit = lower bound is zero.

EO = entrepreneurial orientation; AMC = architectural marketing capabilities.

^a Control variables are natural log transformed.

** $p < .01$; * $p < .05$; † $p < .10$

Table 5. Parameter estimates of Performance and Growth models

Variables	Dependent Variables			
	<i>Coefficient (SE)</i>			
	Profit	Sales	Profit-Growth	Sales-Growth
Controls^a				
Firm size	.53 (.14)**	.71 (.10)**	.40 (.19)**	.55 (.13)**
Firm age	-0.07 (.13)	.003 (.09)	-.13 (.17) [†]	-.06 (.12)
No of Competitors	.14 (.08)*	.02 (.06)	.18 (.11)*	.07 (.07)
Independent variables				
No. of NP	.01 (.01)	-.03 (.01)	-.03 (.02)	.03 (.01)
SMC	.13 (.13)*	.12 (.11)*	.09 (.20)	.13 (.14)*
Interaction				
No. of NP * SMC	.18 (.02)**	.20 (.02)**	.19 (.03)**	.18 (.02)**
Constant	-5.54**	-3.55**	-6.56**	-4.06
R ²	.38	.59	.26	.39
Adjusted- R ²	.36	.58	.23	.37

Notes: N = 166; Standardized parameter values are reported.

“No. of NP” = number of new products; SMC = specialized marketing capability;

^a Control variables and dependent variables are natural log transformed.

** $p < .01$. * $p < .05$. [†] $p < .10$.

Table 6. Pathway to Profitability: Moderated Mediation analysis (at time t & t₊₁)

Moderated Mediation Results		
Time @ t	Estimates	95% C. I.
Indirect effects (conditional) at:	<i>Coefficient (SE)</i>	<i>(Low, High)</i>
High levels of AMC & SMC	.104 (.046)	(.013, .195)
Low levels of AMC & SMC	-.044 (.035)	(-.114, .025)
Mean levels of AMC & SMC	.023 (.023)	(-.023, .069)
Indirect effect (only mediation)	-.169 (.110)	(-.387, .049)
Time @ t+1		
Indirect effects (conditional) at:		
High levels of AMC & SMC	.114 (.058)	(.000, .227)
Low levels of AMC & SMC	-.004 (.055)	(-.113, .105)
Mean levels of AMC & SMC	.050 (.041)	(-.031, .131)
Indirect effect (only mediation)	-.112 (.111)	(-.330, .106)

Notes: (t+1) = firm performance collected one year after the primary survey at time t.

A single model was run to simultaneously estimate the complete ‘pathway to profitability’ (Figure1 EO→NP→performance) conditioned on marketing capabilities.

“No. of NP” = number of new products is distributed negative-binomial with zero-inflation;

Model specification based on Preacher, Rucker, and Hayes (2007), Table 1: Model 4, p. 203

SMC = specialized marketing capability; EO = entrepreneurial orientation;

AMC = architectural marketing capabilities.

Table 7. Results of Wu-Hausman Endogeneity Test

	EO	LN(No of NP)
Constant	3.73 ^{**}	4.79
AMC	.58 ^{**}	-2.18
SMC	-.03	
Firm age ^a	-.06	.25
Firm size ^a	.18	-.58
R&D intensity ^a	.22 ^{**}	-.88
No. of competitors	.01	
Residual (β_{res})		-4.33
EO		4.52
EO ²		-.14 [*]
EO * AMC		.13
H ₀ : $\beta_{\text{res}} = 0$.		
$p > t = .2351$ thus fail to reject H ₀ .		

Notes: “No. of NP” = number of new products; SMC = specialized marketing capability; EO = entrepreneurial orientation; AMC = architectural marketing capabilities.

^a Control variables: firm age, firm size, and R&D intensity are natural log transformed.

^{**} $p < .01$.

^{*} $p < .05$.

Figure 1. Conceptual Framework

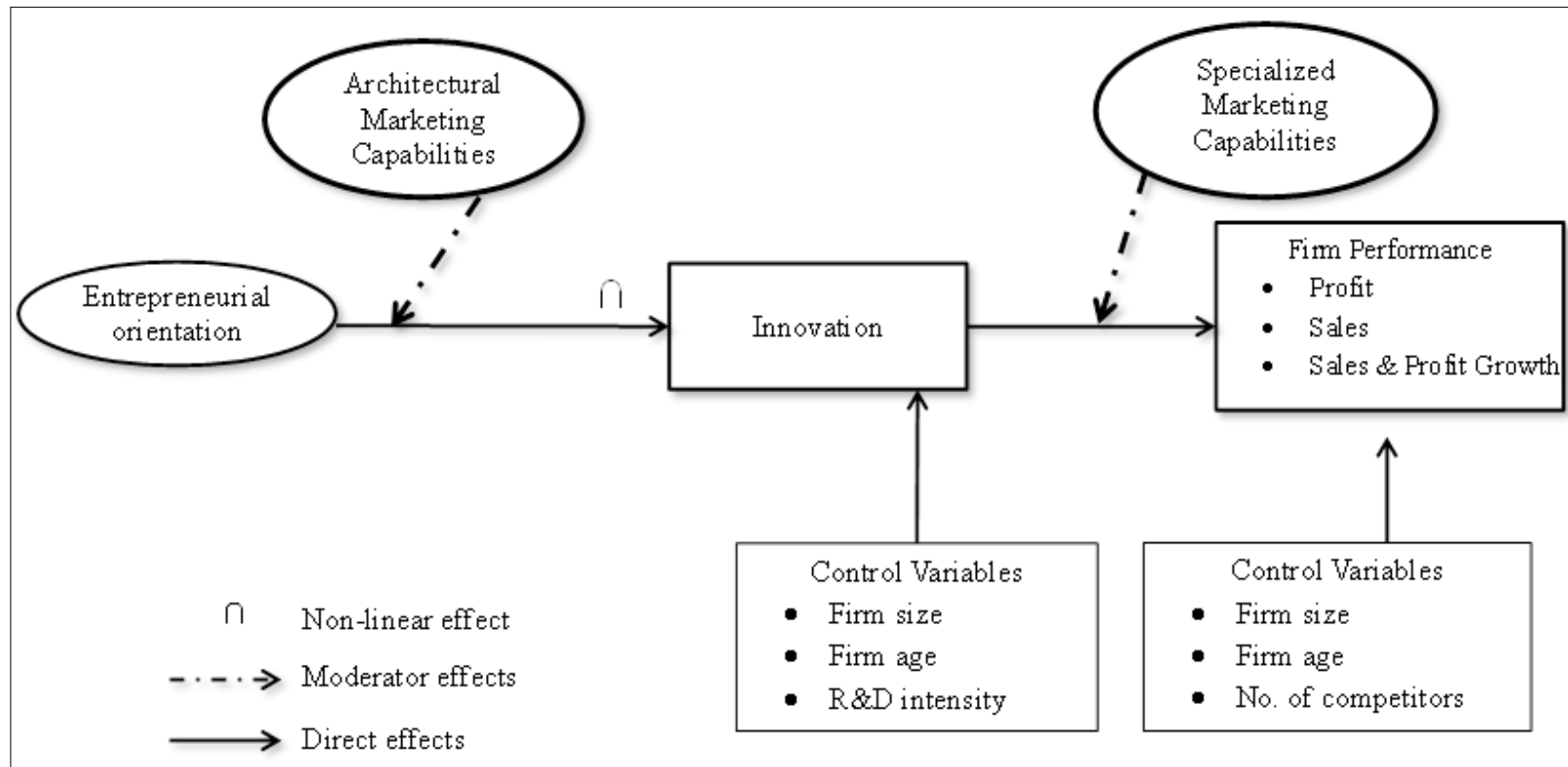
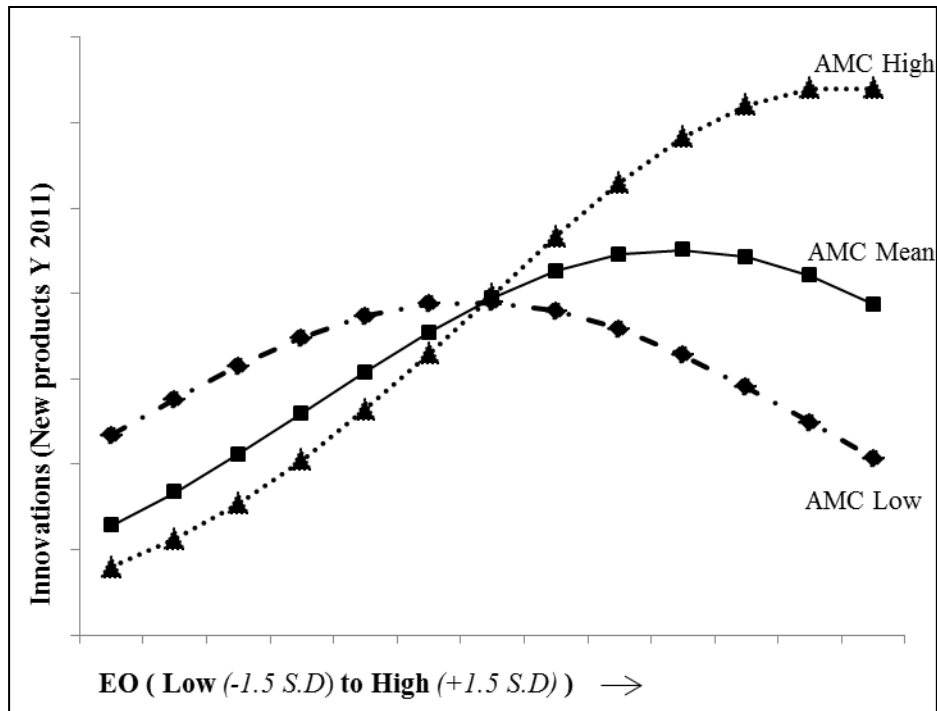
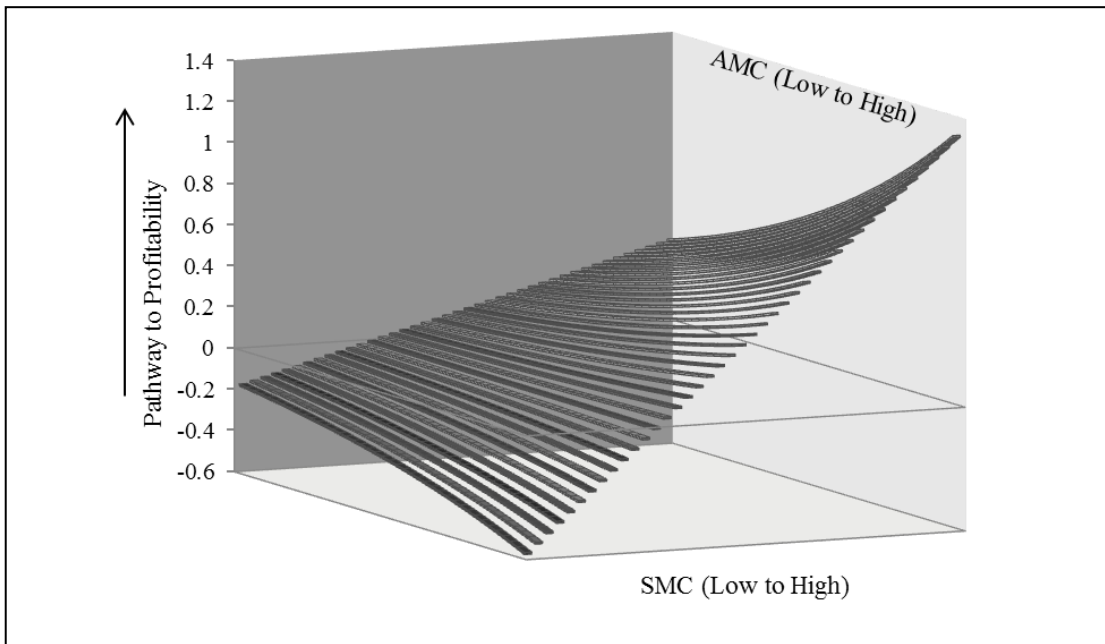


Figure 2. **Panel A:** Interaction between EO & AMC on Number of New Products

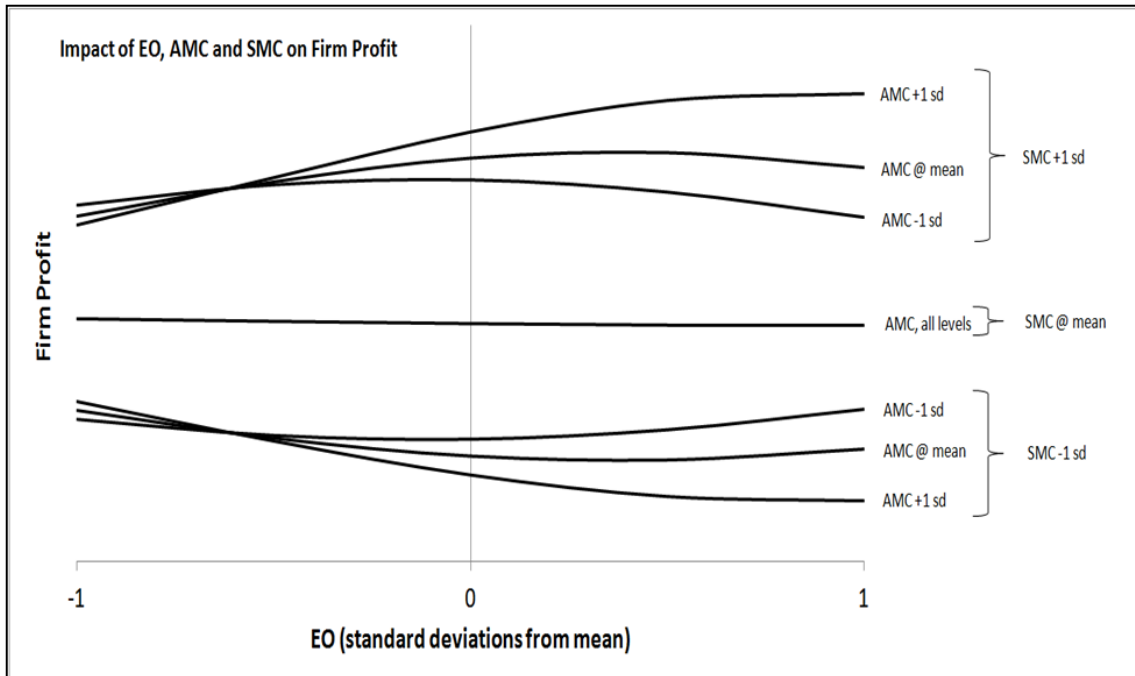


Panel B: Pathway to Profitability (Moderated Mediation)



Notes: EO = entrepreneurial orientation; AMC = architectural marketing capabilities; SMC = specialized marketing capabilities.

Figure 3. Relative importance of AMC vs. SMC on Firm Profit



Notes: EO = entrepreneurial orientation; AMC = architectural marketing capabilities; SMC = specialized marketing capabilities.

APPENDIX A. Measurement Scales

Items	SE ^a
Entrepreneurial Orientation: 7-point semantic difference scale	
Parcel 1	.83
A strong emphasis on the marketing of tried & true products or service (1-7) A strong emphasis on R&D, technological leadership, & innovations	
Typically responds to actions which competitors initiate (1-7) Typically initiates actions which competitors then respond to	
A strong preference for low-risk projects (with normal & certain rates of return) (1-7) A strong preference for high-risk projects (with chances of very high returns)	
Parcel 2	.80
No new lines of products or services (1-7) Very many new lines of products or services	
Is very seldom the first business to introduce new products/services, administrative techniques, operating technologies, etc. (1-7) Is very often the first business to introduce new products/services, administrative techniques, operating technologies, etc.	
Because of the nature of the business environment, it is best to explore it gradually via cautious, incremental behavior (1-7) Owing to the nature of the environment, bold, wide-ranging acts are necessary to achieve the firm's objectives	
Parcel 3	.79
Changes in product or service lines have been mostly of a minor nature (1-7) Changes in product or service lines have usually been quite dramatic.	
Typically seeks to avoid competitive clashes, preferring a 'live-&-let-live' posture (1-7)	
Typically adopts a very competitive, 'undo-the competitors' posture	
Typically adopts a cautious, 'wait-&-see' posture in order to minimize the probability of making costly decisions (1-7) Typically adopts a bold, aggressive posture in order to maximize the probability of exploiting potential opportunities.	
Architectural marketing capability: 5-point scale: "not very well" to "very well"	
Parcel 1	.75
Environmental scanning (<i>Tracking & Learning</i>)	
Internal coordination & communication	
Market planning	.74
Marketing skill development	.74
Specialized marketing capability: 5-point scale: "not very well" to "very well"	
Parcel 1	.74
Advertising & promotion	
Pricing	
Distribution	
Parcel 2	.76
Public relations	
Customer relationship management	
Parcel 3	.71
Personal selling	
New product or service development	

^a: Standardized factor loadings

CHAPTER 3: CEO SELF-MONITORING AND FIRM INNOVATIVE CAPABILITIES

Modified from an article published in *Academy of Management Proceedings*

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ABSTRACT

CEOs play a critical role in fostering organizational innovation, which is widely considered a critical element for organizational survival, growth, and performance. CEO personality is emerging as a central area of study in strategic management and has been shown to have a profound impact on firms' performance. However, the few studies that have examined CEO personality and innovation have overlooked CEO's self-monitoring, which is critical in organizational innovation. High self-monitors are particularly good at sensing, judging, and building relationships, all of which directly influence the organization's innovation effort and the value derived from them. We draw from upper echelons and innovation literatures to argue that self-monitoring shapes the dual role played by CEOs in the innovation process: creating value for customers by developing a firm's innovative capabilities and appropriating value for the firm by transforming these capabilities into superior market performance. Self-monitoring CEOs are able to develop and articulate their innovation vision that strongly engages followers' behaviors in the interest of the vision articulated by the CEO. Data from a

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multi-source sample of 201 small and medium sized manufacturing enterprises (SMEs) in India show that CEO self-monitoring has a positive impact on innovation capability of a firm and a significant moderating impact in translating that capability into superior firm performance. Additionally, results show that the impact of self-monitoring on innovation capability is stronger under high conditions of environmental complexity, competitive intensity, and demand uncertainty.

Introduction

CEOs play an important role in fostering the innovation capability of their organizations (Elenkov, Judge, & Wright, 2009;), which has been widely recognized as critical for organizational survival, growth, and performance (Christensen & Raynor, 2003; Lev, 2001). Previous literature in strategic leadership has linked organizational innovation outcomes to several characteristics of CEO's, including demographics (Kor, 2006; Wu, Levitas, & Priem, 2005; Young, Charns, & Shortell, 2001), leadership style, with a focus on transformational leadership (Jansen, Vera, & Crossan, 2009; Ling, Simsek, Lubatkin, & Veiga, 2009), and attention (Yadav, Prabhu, & Chandy, 2007). One characteristic that has received far less attention in this literature is *CEO personality*. This is somewhat surprising because CEO personality is recognized as a key element not only for the choice of strategy and structure in organizations (Miller & Toulouse 1986), but also for explaining how CEOs interpret and act on external and internal stimulation (Berson, Oreg & Dvir 2008).

The few studies that have examined CEO personality and innovation have attempted to explain the influence of personality aspects such as internal locus (Miller & Toulouse,

1986), self-directed values (Berson, Oreg, & Dvir, 2008), and hubris (Tang, Li, & Yang, 2013). One personality aspect that is notably missing in the literature is CEO's self-monitoring. The importance of this CEO characteristic for organizational innovation arises from the fact that high self-monitors are particularly good at getting along (with people that participate in the organization's innovation effort) and making sense (that contribute to flexibility and adaptation) (Day & Schleicher, 2006). No empirical study, to date, has evaluated how high-self monitors can be effective in promoting organizational innovation (Scott, Skaggs, Kowalski, & Roy, 2010).

We address this gap in the present study. We draw from upper echelons and applied psychology theories to argue that self-monitoring shapes the dual role played by CEOs in the innovation process: creating value for customers by developing a firm's innovative capabilities and appropriating value for the firm by transforming these capabilities into superior market performance (Lepak, Smith, & Taylor, 2007). High self-monitors are likely to have an understanding of main organizational concerns, focus their attention on building innovation capabilities, bring about alignment in organizational actions and emerge as leaders to successfully market the firm's innovations (Day et al., 2002; Day & Scleicher, 2006; Tang et al., 2013). We examine this dual role of CEO self-monitoring under varying environmental conditions such as environmental complexity, demand uncertainty, and competitive intensity. It is expected that the need for self-monitoring will likely be more pronounced under challenging market conditions.

The theoretical model proposed in the study (shown in Figure 1) is tested using a multi-source sample of small and medium sized enterprises (SMEs) from an emerging market—namely, India. Results confirm the dual value creation hypothesis: CEO self-

monitoring has a positive impact on innovation capability of a firm and a significant moderating impact in translating that capability into superior firm performance. Results also show that the impact of self-monitoring on innovation capability is stronger when (a) the environmental complexity is high, (b) the competitive intensity is high, and (c) the demand uncertainty is high.

The study contributes to the strategic leadership literature in three ways. First, it adds to the literature on CEO self-monitoring by showing how relationships can be used for building key organizational capabilities. High self-monitors make better sense of employee expectations and are better able to align their employee efforts toward organizational needs. Second, it adds to the value creation and appropriation dialogue by identifying a personality trait of the CEO that can be linked to both value dimensions. Self-monitoring not only helps internally in channeling employee actions, but also externally in maximizing value extraction from products and services developed by the firm. In fact, our results question conventional wisdom that self-validation motives of a low self-monitor are most needed to perform effectively at top layers of management (Day & Schleicher, 2006). Third, the study identifies environmental conditions that are more suited for eliciting the positive effects of self-monitoring. Environmental variation requires managers to change their behaviors to suit the context and it appears that high self-monitors are better able to handle such situations.

Theoretical background and Hypotheses

Innovation Capability

There is wide agreement in that ability to innovate represents today's competitive advantage. Excellent companies invest and nurture this capability, from which they develop new products and services and superior business performance results (Lawson & Samson,

2001). Firms that have built up their innovation capability consistently bring high value products to the market faster and in a more efficient manner than competitors. The implication for managers is that they have to be constantly engaged in nurturing and building innovation ability within their firms to survive and succeed in the markets they serve.

We define innovative capability as the organizational ability to generate both incremental and radical innovations. Incremental innovations build on existing knowledge to refine and improve the performance of existing products and services, whereas radical innovations draw upon transformed prevailing knowledge to create fundamental changes that often make current products and services obsolete (Chandy & Tellis, 2000; Subramaniam & Youndt, 2005). While incremental innovations are exploitative and allow firms to profit from their existing offerings, radical innovations are exploratory in nature and help firms exploit their value over an extended time frame (Benner & Tushman, 2006). It is widely recognized that in order to compete, firms need to develop capabilities to generate both incremental and radical innovations (He & Wong, 2004; Katila & Ahuja, 2002; Rothaermel & Deeds, 2004).

Although many antecedents for building innovation capability of a firm have been identified and evaluated in previous literature, the focus of the present study is on CEO's self-monitoring ability. The development of innovative capabilities involves strengthening organizational capacity to develop new products for current and future needs and new processes to produce those new products, as well as the capacity to respond to unexpected market opportunities. To increase these capacities, not only are resources needed; they also need top management vision and development of an innovation culture that permeates throughout the organization (Augier & Teece, 2009; Rothaermel & Hess, 2007). Leaders high on self-monitoring are more likely to sensitize others in the firm on the need for

building these types of innovation capacities. If they get the buy-in from their employees, the result is higher innovation capability for the firm.

CEO Personality

CEO personality is becoming a central research area in strategic management (Chatterjee & Hambrick, 2007; Nadkarni & Herrmann, 2010). The CEO, as the leader and main decision maker, establishes the main strategies and plans for the firm (Chatterjee & Hambrick, 2007; cMiller & Toulouse, 1986; Miller & Dröge, 1986) and has a primary implementation responsibility (Herrmann & Nadkarni forthcoming; Calori, Johnson, & Sarnin, 1994; Gioia & Chittipeddi, 1991). A CEO exerts formal and symbolic power (Nadler & Heilpern, 1998; Rajagopalan & Datta, 1996) and has a profound impact on the firm's performance (Hambrick & Mason, 1984; Rajagopalan & Datta, 1996; Resick et al., 2009). CEO personality is considered a major influence on strategic outcomes (Nadkarni & Herrmann, 2010; Peterson et al., 2003), including firm innovation (Tang et al., 2013). Researchers have found that *CEO* personality traits such as hubris (Tang et al., 2013), locus of control (Miller & Toulouse, 1986), narcissism (Chatterjee & Hambrick, 2007), and core self-evaluation (Resick et al., 2009; Simsek, Heavy, & Veiga, 2010) are important determinants of strategic outcomes for the firm.

We focus on self-monitoring as a critical personality trait of CEOs because high-self monitors tend to occupy the most central positions in organizations (Sasovova et al., 2010), emerge as leaders, and are overrepresented in upper-level management (Day et al., 2002). Scott et al. (2010) found that high self-monitoring CEOs excel as strategic leaders by identifying main sources of opportunity, which they integrate effectively in organizations due to their capability to build relationships with employees and manage their expectations.

CEO-Self Monitoring and Innovation Capability

Self-monitoring refers to the processes by which individuals actively plan, enact, and guide their behavioral choices in social situations (Snyder & Cantor, 1980: 22) to better fit and seize opportunities presented by the social climate around them (Day et al., 2002). In an innovation context, we argue that high self-monitors will play a dual role in developing innovative capabilities of the firm and ensuring that these capabilities result in high firm performance.

A key determinant of innovation capability is market learning. Organizations need to identify, assimilate, and exploit new knowledge from the market essential for a firm's competitive success (Lichenthaler, 2009). High self-monitors may be more able and motivated than low self-monitors to seek out and tap into the information resources available from different market players (Mehra, Kilduff, & Brass, 2001). Extant research suggests that they are more skilled at social interactions (Furnham & Capon 1983). Moreover, they are likely to occupy more bridging positions in market networks than a low self-monitor leader. In combination, positional advantage fueled by high levels of motivation and ability will likely result in a finer sense of awareness of needs unmet and opportunities. The process of learning may also contribute to a greater understanding of the need for an organizational culture that fosters greater openness to the external environment. Further, because of their structural position within the organization, high self-monitor CEOs may also have the power to create this culture in-house among all employees participating in the innovation process. While low self-monitor CEOs also enjoy positional advantage, being closed to external cues (i.e. weak to sense external signals) may prevent them from gaining an understanding of the importance of building such a culture and thus they may not use their pulpit for such a

purpose. The above difference is consistent with the notion that “individuals in organizations may outperform their peers not only because of differences in the networks to which they belong but also because of individual differences in personality” (Mehra, Kilduff & Brass, 2001; p. 123)

Another key determinant of innovation capability is collaboration: internal and external. Because high self-monitor CEOs are more likely to rely on social cues to guide their behaviors, they tend to focus on collaboration and compromise more than low self-monitor CEOs (Baron 1989). Baron and Markman (2000) suggest that social skills and leadership ability of high self-monitors enable them to use cooperation as a means to achieve organizational goals. Much of the innovation process involves inter-functional communication and bringing together the skills of a large number of diverse people both inside the firm and outside. Self-monitoring theory predicts that high self-monitors not only will move around in a larger set of groups with diverse roles, but also use their relationship and listening skills to develop friendships with different people. In an innovation context, they may use this to their advantage by impressing on others the need to come together and work for a common innovation vision for the firm. Price and Gioia (2008), for instance, found that high self-monitors are more likely to influence their organization to adapt to fit industry and societal requirements when compared to low social monitors.

Extant research provides general support for the above arguments. Eisenhardt (1989) and Yadav et al. (2009) show how CEOs' attention contributes to greater focus on innovation. Yadav et al. (2009) found that CEOs who paid special attention to events inside the firm were more likely to help the firm develop products based on technological opportunities. Scott, Skaggs, Kowalski, and Roy (2010) argued that high-self monitors are

likely to be effective in developing and maintaining core competences thanks to their predisposition to sensing, judging, and building relationships, which allows them to identify and integrate sources of knowledge through their organizational connections. They tend to be better than low-self monitors in obtaining external and internal information and are able to better discriminate in the selection of appropriate mechanisms that will result in the development of innovative capabilities (Rothaermel & Hess, 2007). Additionally, high self-monitors are likely to embrace and initiate change (Goldsmith, 1987).

Hypothesis 1: CEO self-monitoring will have a positive association with organizational innovation capability.

Moderating Impact of Environmental Factors

It is well-known that organizations need to adapt to their environment if they are to remain viable. In one of the early studies on environments, Dess and Beard (1984) identified three key dimensions of a firm's environment: munificence, complexity and dynamism. Dynamism is made up of two components: customer dynamism (demand uncertainty) and competitive dynamism (i.e., competitive intensity). Munificence signals the degree to which the environment provides resources to the firm, while complexity and dynamism reflect the degree of uncertainty the firm faces. The impact of each of these environmental dimensions on the relationship between self-monitoring and innovation capability of the firm is discussed next.

Environmental complexity: H1 posited that high self-monitors will contribute to innovation capability of firms more than low self-monitors. We believe that the skill set and personality of high self-monitors will be more valuable in environments that are complex. Environmental complexity refers to broad uncertainties across customer, competitor and

technology domains which adversely impact a firm's ability to predict accurately and thus its ability to develop appropriate strategies and tactics (Miller & Friesen, 1983). When managers face uncertainty, they may not respond in the same manner; while some may abandon their search for clues about the sources and intensity of changes in their external environment, others may try to manage the uncertainty. Between the two, high self-monitors are more likely to face environmental uncertainties head on when compared to low self-monitor managers. High self-monitors are more likely (than low self-monitors) to (1) seek more information about the environment that they find to be complex, (2) gather relevant information through their bridging ability, (3) adapt behavior to address the complexity, and (4) initiate actions to reduce the complexity. In other words, the positive impact of self-monitoring on innovation capability of the firm will be more apparent when environmental complexity is high. On the other hand, low self-monitoring CEOs will be more at a loss in finding the right steps to shore up and build the firm's innovation ability.

Environmental munificence: On the other hand, the personality of a high self-monitor leader may not be as valuable in a munificent environment. Munificence refers to the availability and abundance of critical resources within an environment (Dess & Beard 1984). Munificent environments offer good growth prospects and provide the firm with sales and profit opportunities. From a dependence perspective, when resources are abundant, firms are less dependent on resource-providers. The lower dependence reduces the need to monitor one's self-presentation when seeking resources that will enhance the innovation capability of the firm. In other words, there is less need to be a high self-monitor in munificent environments. However, when resources are scarce, the more effort the organization will have to exert to obtain resources from its environment (Staw & Sz wajkowski, 1975). Unless

the organization and its representatives are adept at identifying resource sources and means of acquiring them, they will suffer from resource scarcity that can impinge on the firm's innovation activities. High self-monitors, because of their greater sensitivity to external cues, may be more adept and resourceful in operating in low munificent environments as compared to low self-monitors.

Competitive intensity: In a competitive environment, organizations will find themselves in a zero-sum game. That is, competing organizations cannot all win simultaneously. Firms will need to expend resources to counter competitive pressures which will have a negative impact on the level of resources available to firms to build their innovation capability. We believe that organizations (managers) differ in the abilities of their managers in attenuating the effects of this allocation problem. The organizational economics paradigm provides one direction for handling competitive pressures—managerial actions that will facilitate coordination, reaping economies and aligning strategies with structures and solving the market-failure problem (Barnett, 1997). In the present study, we offer an alternative view that is based on the self-monitoring profile of the CEOs that determine those managerial actions. High SMs are more likely than low SMs to identify the pressure points from the environment and to reconfigure internal structures that will provide maximum efficiency and thus release resources for supporting innovation. Viewing this differently, the skill set of high self-monitors will be needed more in a situation where the firm has to handle resource pressures and find creative solutions for resourcing their innovation endeavors.

Demand uncertainty: Another environmental pressure faced by firms is demand uncertainty from customers. We argue that the effect of self-monitoring on innovative capabilities is likely to be stronger in dynamic environments. Dynamic customer

environments are characterized by a high rate of unpredictability and change (Grewal, Comer, & Mehta, 2001), which makes it difficult for firms to anticipate customer needs. Uncertainty would tend to generate a high degree of stress and anxiety among organization's managers and employees (Waldman, Ramirez, House, & Puranam, 2001). High self-monitoring CEOs are willing to scan the environment and seek information (Scott et al., 2010). A greater focus on the external environment leads to a greater awareness of customer needs, and anticipation of new opportunities, which leads to quicker detection of new technologies (Yadav et al., 2009) and faster development and more extensive deployment of innovations (Han, Kim & Srivastava, 1998).

Hypothesis 2: Environmental complexity, competitive intensity and demand uncertainty (munificence) positively (negatively) moderate(s) the relationship between self-monitoring and innovative capabilities such that the effect of CEO self-monitoring on innovation capabilities will be stronger (weaker) in complex, competitively intense and uncertain (munificent) environments.

Innovation Capability and Firm Performance

Capturing value from the firm's innovative capabilities requires a collective execution effort. We argue that innovative capabilities are likely to result in higher performance in firms led by high-self monitoring CEOs who can exert leadership and develop relationships between different units which facilitate utilization of the collective strengths of the firm. A high innovation capability typically results in new products and services that can potentially provide competitive advantage to the firm. However, the firm still needs to appropriate value from these new offerings. Value appropriation is feasible only with the help of collective organizational effort. That is, successful positioning and sales of new products and services involves interaction among several actors across departments and functional areas. To make

this happen requires understanding of employees' needs and an ability to interact with different individuals, which is a main trait of high self-monitoring CEOs. CEOs high in self-monitoring are likely to pay more attention, listen, and communicate better with others. This better communication will allow them to obtain employee buy-in and participation in implementing value appropriation activities related to their innovative capabilities. They will also be able to do this across functional units of the firm which will contribute to better integration of appropriation activities and enhanced performance.

The above discussion is based on the logic that employees and external partners are willing to be persuaded by their leaders. We provide a social-capital explanation to support this logic. Previous studies have shown that social capital often assists leaders in gaining access to critical market players, including own employees. However, once access is gained, the outcomes are influenced to some degree by how well they interact with these players. We believe that self-monitoring capability of the leader is the missing link. High self-monitors understand other people well, are able to address expectations at the individual level and provide a positive impression to those that they interact with. These qualities provide leaders with enhanced access to information (Baron & Markman, 2000) and increased cooperation and trust from others. In other words, high self-monitoring CEOs derive their ability to effectively utilize their social capital and generate superior organizational outcomes from their willingness to maintain and foster relationships (Day & Schleicher, 2006). They are able to convince others to share in their beliefs and go about the appropriation process in a collective manner.

Low self-monitor CEOs are consistent in demonstrating behaviors that express their inner feelings and beliefs. They are guided more by internal cues to produce effective work,

whereas high self-monitors attend more to external situation cues (Mehra, Kilduff, & Brass 2001). Mehra et al. suggest that low self-monitors may not perform as well in achieving cooperation and integration among employees and units because they lack the social skills and leadership abilities shown by high self-monitors.

Hypothesis 3: CEO self-monitoring positively moderates the positive association between innovation capabilities and firm performance

Methods

Sample and Data Collection

The study hypotheses were tested with data collected from small and medium enterprises (SMEs) in the manufacturing sector in India. SMEs include firms that have more than 100 employees but less than 500 employees. This group is relevant for the study as innovation is critical for their growth and survival (Ramachandran & Ramnarayan 1993). A sample of 900 manufacturing firms from five major cities in India (Delhi, Chennai, Hyderabad, Bangalore, and Mumbai) was randomly selected from the Indian Chamber of Commerce Industry Directory. The chosen companies were classified under Section C – manufacturing industry of the ‘National Indian classification (NIC)’. NIC (2008) is based on International Standard Industrial Classification (ISIC) and is prepared by the ‘Central Statistical Organization of Ministry of Statistics and Program Implementation, Government of India’. Table 2 shows the sample composition.

Data for this study came from two sources in each participating firm: the chief executive officer (CEO) and a top marketing management executive. We conducted pretest interviews for the survey with 11 CEOs and 11 vice presidents or senior marketing managers. We used the feedback from these interviews to refine the survey items and the instructions

for the questionnaires. The final refined survey was again evaluated and completed by these CEOs who reported ease of completion and relevance to the Indian context (these 11 data points weren't included in the final sample). To motivate the final sample respondents to answer, the cover letter mentioned a commitment of benchmark analysis and research findings report, which we emailed to the CEOs after data collection.

We followed the suggestions of Hoskisson et al. (2000) for administering surveys in emerging economies by collaborating with local researchers. A national marketing research agency firm was chosen to administer the survey using experienced interviewers. While CEOs are definitely key informants, we validated whether the VPs were key informants by using a three-item scale used by Kumar, Stern, & Anderson (1993) which evaluated how confident, knowledgeable, and involved the VPs were with firm level strategies. From the initial pool of 900 firms, we dropped 137 firms with less than 100 employees and dropped 114 firms with greater than 500 employees thus making our initial sample space as 649. When these 649 firms were contacted, 247 firms refused appointment; however we were successful in persuading 154 firms to provide basic information like employee size and industry type for use in non-response bias test. Finally we obtained 201 completed survey responses, for a response rate of 31%.

Measures

General measurement approach. We operationalized the key study constructs using existing measures validated by previous studies. We employed three steps at the design stage of survey development to avoid potential biases with regards to data collection efforts. First, we collected the study's constructs from two key informants, CEO and VP or the senior most executive nominated by the CEO as responsible for overall firm level business-

development/strategy. Second, we collected objective data for firm performance dependent variables, and finally we also collected data on performance variables one year after the primary survey. Third, to avoid boredom/monotonous response behavior and to improve attention from respondents, the survey questions were designed in different formats like semantic differential, Likert, and objective measures.

Self-monitoring. We adapted the scale developed and validated by Lennox and Wolfe (1984) to operationalize CEO's self-monitoring. The scale consisted of 13 items in a five-point Likert-type format. This construct measured the extent to which individuals use cues from social interaction to alter their action. Specifically this construct captured two dimensions of self-monitoring, sensitivity to the expressive behavior of others and ability to modify self-presentation. Sample items for the former include "In conversations, I am sensitive to even the slightest change in the facial expression of the person I'm conversing with," "I can usually tell when I have said something wrong by reading it in the listener's eyes" and sample items for the latter dimension include "I have the ability to control the way I come across to people depending on the impression I wish to give them," "Once I know what the situation calls for, it's easy for me to regulate my actions accordingly." Meta-analysis by Day et al (2002) showed that Lennox and Wolfe's scale was conceptually clear in capturing self-monitoring and had better reliability than other self-monitoring scales in an organizational setting. We represented self-monitoring as a second order latent construct reflected by these two dimensions. Following recommendation by Coffman and MacCallum (2005) we randomly parceled individual items in each dimension (cf. Appendix). Composite reliability for the scale was .81 and average variance extracted (AVE) was .47 (Fornell &

Larcker, 1981). AVE was greater than the squared correlation between any pairwise correlations with self-monitoring. In sum, the scale exhibited strong psychometric properties.

Firm innovative capability. Innovative capability was measured using a scale recommended by Subramaniam and Youndt (2005) that represented the firm's ability to generate innovations. This scale captured both relevant types of innovative capabilities: incremental and radical using three-items for each type. Incremental innovative capability represented the firm's ability to extend, refine, and reinforce existing products and services, while radical innovative capability represented the firm's ability to transform existing products and services to generate innovation. For our study because we conceptualize innovative capability as a generic capability of the firm to innovate, we operationalize it using a second order latent construct reflected by its two dimensions of incremental and radical innovative capabilities. Recent meta-analysis by Rubera and Kirca (2012) on firm innovativeness points out the broad classification of firm's inclination to develop new products based on incremental and radical means. Furthermore the correlations between the individual dimensions were high ($.59, p < .01$) indicating the possibility of a latent concept commonly shared and represented by these two dimensions (Bagaozzi & Yi, 2012). For our study's theoretical motivations to explicate the linkage between CEO self-monitoring and firm level innovative capability we feel it is conceptually reasonable to capture innovative capability at its abstract level rather than based on its parts. However to be consistent with the study by Subramaniam and Youngdt (2005) we unpack the innovative capabilities into its two dimensions and investigate the relationship with CEO self-monitoring as an additional analysis and elaborate it under robustness-tests section. The composite reliability of the higher order construct was .84 and the AVE was .48.

Demand Uncertainty. We adopted the five item scale from Jaworski and Kohli (1993). These five items address the extent and unpredictability of change in customers' preferences, demands and expectations. We dropped one item which had poor factor loading on the construct. The final four items were modeled as representing a single dimension reflective construct, which had a construct validity of .88 and AVE of .65.

Environmental Complexity. Environmental complexity addresses the extent to which firms' business environment is competitive, heterogeneous, and inimical (Miller & Friesen, 1983). We captured environmental complexity using six items from Green, Covin, & Slevin (2008). We dropped two items which had negative loadings on the construct and operationalized the construct as a formative scale as each of the four items uniquely captured certain features which did not share a common underlying cause (Diamantopoulos & Winklhofer, 2001). While Green and colleagues operationalized the construct as reflective, as each item seems to cause an abstract concept of environmental complexity rather than a construct of complexity reflected by these items we modeled this construct as formative. Further, each item in the scale doesn't have a common core concept to be shared across (inter-item correlations were low as well), while independently captures unique facets of complexity from product, market, competitor and institutional perspective. An important consideration for a formative scale is to check whether the set of items are sufficiently inclusive in capturing the domain of content. The first item captures the general inimical nature of the business environment, the second items address the variability in demand, the third item refers to competitor action and the fourth item captures government interference (cf. Appendix).

Environmental Munificence. Environmental munificence was operationalized using a five item scale recommended by Baum and Wally (2003). This scale describes the capacity of the business environment to provide resources and support for the growth of firms. We dropped two items which had poor factor loadings and the final measure was represented as a single dimensional reflective construct having a composite reliability of .81 and AVE of .59.

Competitive Intensity. Competitive intensity refers to the degree of competition a firm faces. We adapted items from Jaworski and Kohli (1993) and Miller and Friesen (1983). We used four items to assess the overall competition, the price competition, and customer reactions to competition. The measure was represented as a single dimensional reflective construct having a composite reliability of .85 and AVE of .66.

Control variables. We controlled for CEO characteristics, firm characteristics, and firm innovation variables because of their association with personality, firm performance, and innovative capabilities respectively. Specifically we controlled for CEO age and CEO tenure (measured as number of years as CEO in the current firm) because these CEO characteristics influence firm innovation and R&D (Barker & Mueller, 2002). We also controlled for TMT size as greater the size of a firm's TMT greater is the diversity of top management human capital thereby stimulating more new ideas and opportunities for the firm (Finkelstein, Hambrick, & Cannella, 2009). Controls for firm characteristics include firm size (measured as the natural logarithm of number of employees), and firm age (natural logarithm of the number of years from a firm's founding date to 2011), and R&D intensity (measured as the average R&D spending for the last 3 years as a percentage of sales. These three firm characteristics were reported by the CEO. Younger and smaller firms tend to be more innovative and dynamic than larger firms and are more willing to try new ideas and

adopt newer strategies to grab the opportunities provided by the environment (Miller & Chen 1996). High R&D intensity implies greater investment by the firm in its innovation and product development activities which drive its innovative capabilities (Rajagopalan & Datta 1996).

Dependent Variable. Objective firm performance measure namely firm's profit growth was used as the dependent variable. Profit growth was measured as the percent difference between annual profits at time 2 and time 1. Profit growth is a cost-based performance indicator and conceptually relevant for the present study as building innovative capabilities involve significant investments in terms of firm resources. Further the one year temporal separation between the study's strategic variables like innovative capabilities and performance variable strengthens the predictive validity of the study's results. Finally we also collected firms' annual sales and profit figures for time 1 and time 2 to be used as alternative performance indicators for robustness checks to add rigor to our findings (Correlations between constructs are provided in Table 1 and robustness checks in Table 3).

Tests for response biases. We used multiple methods to test for response biases. First, following Armstrong and Overton (1977) we compared early and late respondents firms on key firm characteristics such as number of employees, sales, and age. None of these indicators differed at the $p < .05$ level. Second, we compared participating and nonparticipating firms on industry type, and number of employees. No significant differences were found on these indicators indicating that nonresponse bias didn't seem to be a concern. The sample covered companies from a broad spectrum of industries manufacturing wide range of products (cf. Table 2)

Analysis and Estimation

Table 1 provides the descriptive statistics of all the variables, the correlations between them, and the composite reliability values for necessary constructs along the diagonal. The conceptual model was estimated using partial least squares (PLS). We present the analysis, estimation, and results by addressing the following four components: 1.) conceptual and methodological reasons for the choice of PLS, 2.) model fit, 3.) estimation and results and, 4.) robustness analysis.

Choice of PLS. We followed Hair, Ringle, & Sarstedt (2011) and Hair et al (2012) in choosing PLS over covariance based estimation techniques (CB-SEM). The primary reason is that the conceptual model focuses more on theory development rather than testing any existing theories of CEO self-monitoring behavior. We attempt to predict whether CEO's self-monitoring has an impact on firm's innovative capability and performance thereby attempting to extend structural relationships in a broader topic of CEO personality. In addition, we chose PLS for methodological reasons. First, the number of latent constructs with higher order terms and multiple indicators is high and does not meet the asymptotic property requirements of CB-SEM (Bollen, 1989). Second, the structural model is complex involving one formative construct and two latent variable interactions. Therefore, as the focus is more on predictive modeling rather than testing existing theoretical relationships in executive personality, choice of PLS is suitable in comparison to CB-SEM.

Estimation and Model fit. The model was estimated using SmartPLS (Ringle, Wende, & Will, 2005). The full structural model was estimated simultaneously with all the hypothesized effects rather than testing causal effects on each endogenous variable

separately. The model fit indices are analyzed first by evaluating the outer or the measurement model and second by the inner or the structural model.

For reflective constructs, fit indices of the outer model were analyzed using the composite reliability (Fornell & Larcker, 1981), AVE, indicator loadings and checking for convergent and discriminant validity. Table 1 shows that the composite reliabilities of the constructs ranged between .79 - .85; and the AVE between .48 - .66. The indicator loadings were between .75 - .9 and the AVE of each construct were greater than the squared correlations between constructs. Overall these fit numbers indicate strong psychometric properties of each construct providing evidence for strong convergent and discriminant validity (Hair et al, 2012).

Four different inner models were run depending on the type of environmental moderators (cf. Table 4). The inner model was evaluated using the R^2 values, the significance test of individual structural estimates from bootstrapping using 5000 samples with individual sign changes, the change in effect size f^2 , and the predictive relevance using Stone-Geisser Q^2 (Gotz, Liehr-Gobbers, & Krafft, 2006; Hair et al 2012). Finally, the model's overall predictive validity was tested using a "blindfolding" procedure. The default omission distance of 7 was used for this procedure and the results of cross-validated redundancy values for the endogenous constructs were greater than 0. Thus the Stone-Geisser test criterion Q^2 was greater than zero indicating evidence of predictive relevance. In sum, both the outer measurement model and the inner casual model showed signs of construct validities and predictive relevance respectively in supporting the three hypotheses.

Results

Self-monitoring has a significant positive impact on innovative capability in each of the four environmental conditions, supporting H1. The coefficient is 0.18, 0.20, 0.18, and 0.20 in the models corresponding to complexity, demand uncertainty, munificence and competitive intensity, respectively. Three of the four environmental conditions strengthen the impact of self-monitoring on innovation capability of the firm, the exception being munificence. These results provide support for H2. Finally the moderating effect (latent variable interaction of self-monitoring with innovative capability) of self-monitoring on the impact of innovative capability on profit growth is also positive and significant (.30 to .31, $p < .01$) thus supporting H3. Overall, all the three hypotheses were supported. Figures 2 and 3 show the plot of these interaction effects. The R^2 values for innovative capability (.25 to .27) and profit-growth (.15) indicate that the chosen predictors explain more than 15 % of the variance. Besides inspecting the amount of variance explained, test for effect size f^2 was used to investigate whether self-monitoring has a substantial influence on innovative capability. The f^2 values .095 and .17 for the dependent variables innovative capability and profit-growth respectively showed moderate influence.

Robustness Analyses

The robustness of the findings was assessed in three ways (summary of robustness checks are in Table 3: 1) testing for common method bias 2) checking causal effects on first order constructs 3) using different dependent variables.

Common method bias. As our study involves multiple informants (CEO answered questions on self-monitoring, environmental complexity, and innovative capability in time 1; VPs provided responses to environmental munificence and competitive intensity in time1 and

demand uncertainty in time 2, and finally firm performance were objective data from companies' records in time 2) common method bias wouldn't be a major problem. However we tested methodologically for any bias due to common method variance using a marker variable. Following Rönkkö and Ylitalo (2011) we chose a marker variable (two items) which was conceptually unrelated to the constructs under study. The marker variable was set to predict both innovative capability and profit growth. After inclusion of the marker variable none of the main effects and moderating effects changed. The values differed by a .01 and the significance level after bootstrapping were similar to the original model at $p < .01$. Further, the correlations between the marker variable and the other key constructs in the model ranged between .07 - .2 indicating that scope for a common method bias is very low.

Using first order constructs: We ran different models by unpacking each of the higher order constructs to their first order. First a causal path was tested between the second order self-monitoring and the two first-order incremental (.19, $p < .01$) and radical innovative capability (.13, $p < .05$) constructs. The interaction effects of environmental dynamism on the relationship between self-monitoring and two capabilities were positive and significant at $p < .01$. Furthermore, the interaction effects of self-monitoring with the two innovative capabilities on profit growth were significant and positive. Following Lennox and Wolfe's (1984) suggestions in validating models of self-monitoring by considering the two dimensions (ability to modify self-presentation, and sensitivity to behavior of others) separately we unpacked self-monitoring into its two dimensions and had causal path from each of the dimensions to each of the innovative capabilities dimensions. Ability to modify self-presentation had a positive impact on incremental innovative capability (.19, $p < .05$) while sensitivity to behavior of others had a positive impact on radical innovative capability

(.16, $p < .05$). Though the other two causal paths were positive, there weren't statistically significant. It would be worthy of future research to understand the reasons for fit between specific characteristics of self-monitoring with specific innovative capabilities and also to explicate the processes driving such compatibility. Overall, alternate model specifications seem to support and add rigor to the results of our baseline conceptual model.

Different dependent variables: As a final step in our robustness analysis, we ran two other models with different performance variables namely profit at time 2 and sales growth (between time2 and time1). The direct effect of innovative capability on sales growth (.23, $p < .05$) and profits_{time2} (.17, $p < .01$) were both in the same direction as it was for profit growth in the original model. In sum the alternate performance variable specification added more confidence to the study's results.

Discussion

In this study we proposed and tested a series of hypotheses examining the relationship between CEOs' self-monitoring and firm's innovative capability and profitability. The results supported that: (1) CEOs' self-monitoring had a positive main effect on firms' innovative capability, (2) several environmental factors moderated this main effect such that under conditions of high environmental complexity, high competitive intensity, high demand uncertainty, and high munificence, CEOs who are high self-monitors had a stronger effect on firms' innovative capability than low self-monitors, and (3) CEO self-monitoring moderated the effect of innovative capability on firm profitability such that the effect was stronger for high self-monitors than for low self-monitors. Overall these results point to important and complex relationships between CEO self-monitoring, firm innovation, and profitability and

project (within the limitations of the study) high self-monitoring CEOs as better compared to low self-monitors.

Theoretical Implications

This study is grounded in and extends the theoretical notions of upper echelons theory and the firm innovation literature. Upper echelons theory proposes top executives' characteristics as an important driver of firm's strategic outcomes and performance. Innovation and strategic leadership literature predict that firm innovation depends on top level managers' discretion, personality, and demographics. CEO studies investigating personality characteristics of CEOs and its effects have recently received increasing attention (Nadkarni and Herrmann, 2010; Simsek et al, 2010). Surprisingly however, self-monitoring as a personality trait of the CEO hasn't been studied although the literature on self-monitoring in an organizational context has a long and rich trajectory (Snyder, 1987). The self-monitoring literature highlights the importance of this trait (cf. meta-analysis of Day et al, 2002 and comprehensive discussion between Bedeian and Day 2004) with numerous studies documenting how high self-monitors quickly rise within the organization. However, the implications of having self-monitors at the top of organizations have surprisingly been overlooked.

The positive main effect of CEO self-monitoring on a firm's innovative capability has important implications in understanding the influence of CEO characteristics on firm strategic outcomes. Innovation is characterized by change, adaptability, and meeting customer needs. CEOs who are high self-monitors (HSM) are adept in sensing the market for such changes, internalize them within the firm, and return them to the market as innovations, thanks to their collaborative and malleable nature. Bedeian (see the debate in Bedeian and

Day 2004) strongly criticizes such characteristics of leaders in general and addresses this fleeting and chameleon-like opportunistic behavior as fickle and uncharacteristic of leaders. However, from our study there is a strong support to Day's arguments in the debate as it appears that malleability as a trait inherent in HSM CEOs is reflective of their ability to adapt to both situations and needs of fellow colleagues, which makes them able to execute their managerial functions with ease and efficiency. A social capital argument too supports this notion as HSM CEOs are able to connect and collaborate with employees facilitating high-quality exchanges across departments, which likely leads to profitable innovation outcomes. Recently, CEO personality studies (Nadkarni and Herrmann 2010; Herrmann and Nadkarni forthcoming) have also argued using 'managerial cognition,' the need for complex mental models using dynamic rather than stable personality traits of strategic decision makers like CEOs and TMT executives. Our study's results provide direct evidence to these arguments as self-monitoring is a complex trait involving adaptability and reorientation to situational needs and people's attitudes/behaviors. This provides fruitful avenues in examining the psychological mechanisms mediating CEO self-monitoring and strategic outcomes.

Strategy literature thrusts the importance of environmental factors and the moderating role of such factors in firms' strategic outcomes and performance effects. We focused on the relationship between CEO self-monitoring and firm innovative capability more thoroughly by investigating this relationship for several environmental factors. This adds strength to the existing arguments, validity of the relationship, and also throws light on the importance of HSM CEOs as leaders at the top. Our results supported arguments that under dynamic, complex, uncertain, and competitively intense environments, HSM CEOs outperform LSM CEOs in driving firm innovative capabilities. Whereas for munificent environments the

significant moderating effect of HSM self-monitors was contrary to the hypothesized direction of this effect i.e. HSM CEOs strengthened the effect on innovative capability in high munificent environments. These results add richness to the arguments on the importance of HSM CEOs. These results are consistent with the notion that CEOs discretion becomes increasingly important when the environment is in a state of flux, as customer needs are difficult to understand and predict, and competitive pressures inhibit growth drivers of the firm (Finkelstein et al, 2009). The ability of HSM CEOs in sensing such flux quickly and ahead of competition, taking steps to make the firm adapt to such situation, and motivating employees to collectively tackle this situation, leads to stronger innovative capability building. HSM CEOs actions are more pronounced in such hostile environmental situations as they are willing to take the risk and amend the firms' actions to cope up with the situation. This argument derives validity from the core message of upper echelons theory that firm's actions are a reflection of the top management's actions. The study's findings that HSM CEOs have stronger impact on innovation capability under hostile environmental factors brighten the role of self-monitoring as a personality trait of the CEO. However, in contrast to our hypothesis that under favorable environment i.e. in a munificent environment HSM CEOs hinder innovative capability of the firm, the study's results seem to suggest that HSM CEOs favor innovation even under environments rich in opportunities and resources. One reason might be that HSM CEOs are quick in sensing opportunities and outperform competition and are willing to take calculated risks in utilizing the opportunities and resources the environment provides. Lumpkin and Dess (1996) categorize firms that are innovative, risk taking, and competitively aggressive as entrepreneurially oriented. Future

research might investigate the strategic pathway in which CEO self-monitoring drives innovative capability. One pathway might be via firm's entrepreneurial orientation.

Finally the study's results showed that the link between innovative capability and firm profitability is strengthened or positively moderated by CEO self-monitoring. These results are consistent with value creation/appropriation models proposed by Lepak et al (2007). While on the one side HSM CEOs were stronger in driving innovative capability of the firm, on the other side they tend to be winners in orchestrating value realization. HSM CEOs have a stronger impact on firm profitability than low self-monitors. HSM CEOs chief characteristic of malleability aids in value appropriation (i.e., market commercialization). While innovative capabilities indicate strong value potential to drive new products and services, such innovations are useful only if they fetch economic rents. As HSM CEOs are adept in understanding changing customer needs and market flux, they are naturally well suited in positioning the firm innovation in the market in a profitable way. Future research could look at mediating effects and investigate the actual innovative outputs of the firm in terms of new products, innovative services, and innovative business practices, and their effects on firm performance.

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Table 1 Descriptives, Correlations, and Construct Validities

	Mean	S.D.	1	2	3	4	5	6	7	8	9	10	11	12	13	14
1 Firm size	5.23	.54	n/a													
2 Firm age	2.99	.63	.07	n/a												
3 CEO age	3.21	.97	.13 [†]	.16 [*]	n/a											
4 CEO work experience	19.83	9.04	.09	.33 ^{***}	.85 ^{***}	n/a										
5 TMT size	7.40	3.70	.28 ^{***}	.05	-.01	-.07	n/a									
6 R&D intensity	1.13	.74	.01	-.10	-.13 [†]	-.18 [*]	.27 ^{***}	n/a								
7 CEO self-monitoring	3.83	.36	.28 ^{***}	.17 [*]	.18 [*]	.24 ^{**}	.03	-.10	<u>.81</u>							
8 Innovative capability	4.27	.43	.17 [*]	.09	.15 [*]	.15 [*]	.11	-.04	.28 ^{***}	<u>.84</u>						
9 Profit	4.17	7.9	.37 ^{***}	.03	.05	-.01	.32 ^{***}	.08	.11	.18 [*]	n/a					
10 Profit growth	.36	2.36	-.03	-.01	.15 [*]	.12	.03	.08	-.04	.13 [†]	.37 ^{***}	n/a				
11 Sales growth	1.92	17.4	-.03	-.06	.20 ^{**}	.13 [†]	.09	.03	-.08	.13 [†]	.19 [*]	.44 ^{***}	n/a			
12 Demand uncertainty	5.51	1.02	-.10	.01	.06	.06	-.19 ^{**}	-.04	-.16 [*]	.09	-.01	.14 [†]	.14 [*]	<u>.88</u>		
13 Competitive intensity	3.27	.85	.07	.08	.09	.11	.13 [†]	.06	.09	.06	-.03	.01	.02	-.13 [†]	<u>.85</u>	
14 Environmental munificence	3.79	.66	.16 [*]	-.04	.06	-.01	-.10	.01	.24 ^{**}	.25 ^{***}	.12 [†]	-.01	.05	.30 ^{***}	.07	<u>.81</u>
15 Environmental complexity	2.29	.54	-.01	-.10	-.14 [†]	-.15 [*]	.16 [*]	.10	-.23 ^{**}	-.35 ^{***}	.06	-.10	-	-.35 ^{***}	.01	-
												.11				.49 ^{***}
AVE									.47	.48				.65	.66	.59

n = 191 ; [†] $p < .10$ * $p < .05$ ** $p < .01$ *** $p < .001$

Notes: Composite reliabilities are provided along the diagonals (values bold & underlined); AVE = Average variance extracted. “n/a” = Reliabilities not available for objective indicators

Table 2 Sample composition, characteristics

NIC CODE	A. Division Name / Industries	%
27	Manufacture of electrical equipment	16.42
28	Manufacture of machinery and equipment	13.93
29	Manufacture of motor vehicles, trailers and semi-trailers	13.43
25	Manufacture of fabricated metal products, except machinery & equipment	11.94
10	Manufacture of food products	9.95
22	Manufacture of rubber and plastics products	7.96
26	Manufacture of computer, electronic and optical products	5.97
13	Manufacture of textiles	5.47
14	Manufacture of wearing apparel	4.98
	Others	9.95
B. City Sampling		
Delhi: 34.33 %; Bangalore: 21.89 %; Chennai: 20.4 % Hyderabad: 15.42 %; Mumbai: 7.96 %		
C. Annual revenues of the firm in Indian Rupees (INR). [10 Million USD ~= INR. 53 Crores]		
	< 50 Crores	64.2
	50 – 150 Crores	24.88
	> 150 Crores	10.95
D. Number of employees in the firm		
	100 – 250	72.64
	250 – 500	27.36

Notes: NIC = National Industrial Classification (for India). The sampling information is based on a sample of n=201 firms

Table 3 Robustness Analysis: Summary

Issues	Steps Taken	Inference
Common Method bias	<ul style="list-style-type: none"> • Survey design • Methodological remedies 	<p>Multiple informants for key constructs and objective dependent variables</p> <p>Marker variable:</p> <ul style="list-style-type: none"> • The main effects and interactions effects didn't change in the original model • Marker variable showed very less correlations with key constructs
Alternative models	<ul style="list-style-type: none"> • Unpacking innovative capability into two first-order dimensions of incremental and radical innovative capabilities • Unpacking self-monitoring into its two dimensions of 'ability to modify self-presentation' and 'sensitivity to behavior of others' 	<ul style="list-style-type: none"> • Self-monitoring impact on incremental and radical innovative capabilities was positive. Interaction effects with environmental dynamism were similar to original model effects • Ability to modify self-presentation had a positive impact on incremental innovative capability, while sensitivity to behavior of others had a positive impact on radical innovative capability. The other two causal effects were non-significant.
Alternative dependent measures	<ul style="list-style-type: none"> • Using sales growth as alternative dependent measures to test the model • Using actual profit figures at time 2. 	<ul style="list-style-type: none"> • Sales growth: innovative capability had a significant positive effect ($.23, p < .05; R^2 = .14$); and the moderating effect of self-monitoring with innovative capability was significant ($.32, p < .01$) • Actual Profits_{time2}: innovative capability had a significant positive effect ($.17, p < .01; R^2 = .26$); and the moderating effect of self-monitoring with innovative capability was significant ($.31, p < .01$)

Table 4 Estimated coefficients of PLS SEM models

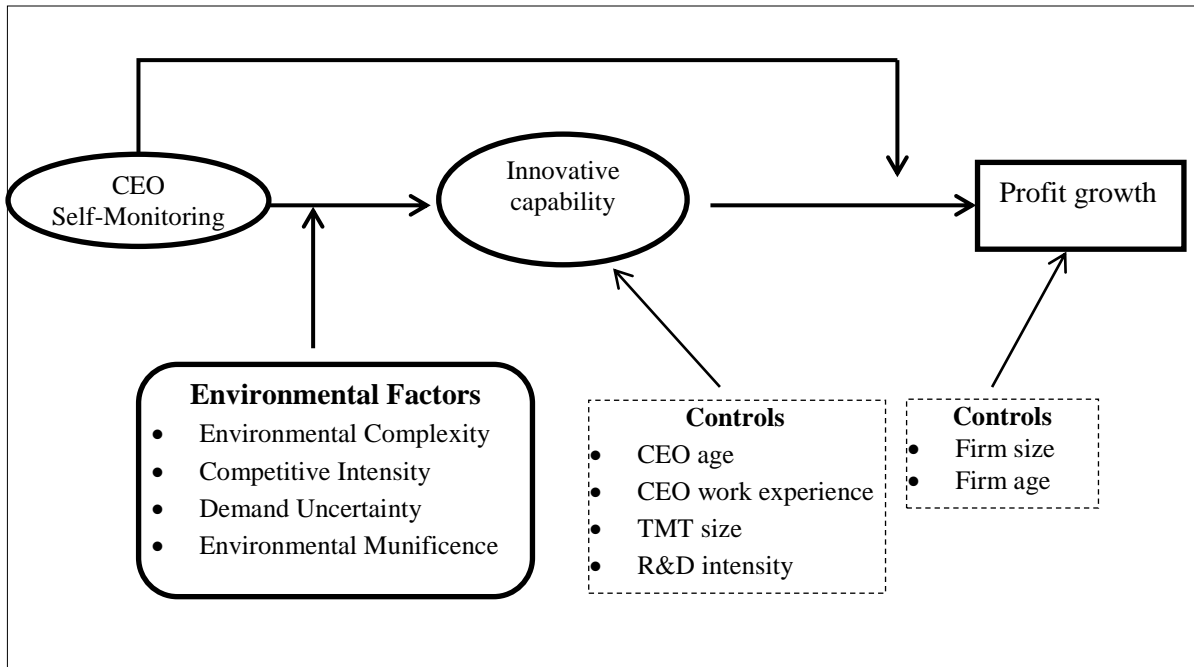
Models→	Model: Environmental Complexity		Model: Demand Uncertainty		Model: Environmental Munificence		Model: Competitive Intensity	
Dependent Variables →	IC (t-value)	PG (t-value)	IC (t-value)	PG (t-value)	IC (t-value)	PG (t-value)	IC (t-value)	PG (t-value)
CEO Self-Monitoring (SM)	0.181 (2.523)	-0.14(1.096)	0.195 (2.68)	-0.062 (1.105)	0.176 (2.40)	-0.062 (1.09)	0.201 (2.975)	
Environmental Complexity (ECXY)	-0.246(2.920)		-0.235 (2.676)		-0.253 (2.99)		-0.268 (3.147)	
Demand Uncertainty (DU)	0.099 (1.67)		0.087 (1.374)		0.098 (1.54)		0.096 (1.512)	
Environmental Munificence (EM)	0.117 (1.653)		0.119 (1.70)		0.112 (1.62)		0.102 (1.551)	
Competitive Intensity (CI)	-0.003 (.048)		0.009 (0.148)		0.006 (0.11)		-0.018 (.293)	
Innovative Capability (IC)		0.169 (2.013)		0.130 (2.024)		0.129 (2.04)		0.129 (2.013)
SM * IC		0.297 (2.15)		0.313 (2.123)		0.313 (2.15)		0.313 (2.16)
SM*ECXY	0.207 (3.152)							
SM*DU			0.124 (2.064)					
SM*EM					0.112 (1.62)			
SM*CI							0.207(3.302)	
R²	0.274	0.151	0.248	0.151	0.271	0.151	0.274	0.151

Notes: n = 191. SM=Self-Monitoring; ECXY = Environmental Complexity; DU = Demand Uncertainty; EM = Environmental Munificence; CI = Competitive Intensity; IC = Innovative Capability; PG = Profit Growth (Y2012 - Y2011)/Y2011.

t – values are reported in parenthesis; Significance is based on bootstrapping using 5000 samples with individual sign changes.

The standardized coefficients for the control variables were similar for all the four models and are as follows: CEO age, .16[†]; CEO tenure, -.08; TMT size, .13^{*}; R&D intensity, -.05; firm age, -.07; firm size, .31^{**}, where [†] p < .10 ^{*} p < .05 ^{**} p < .01

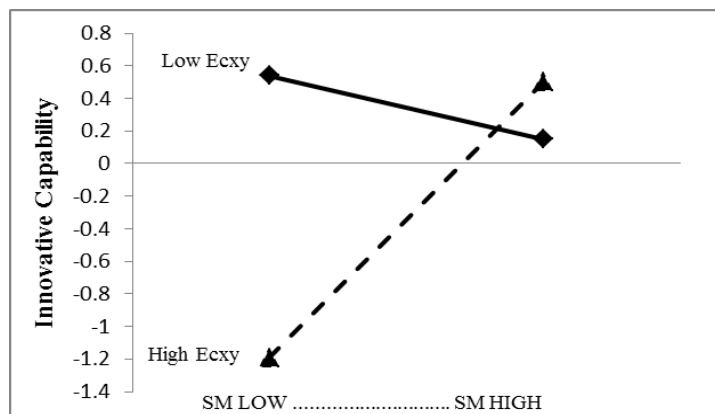
Figure 1 Conceptual Framework



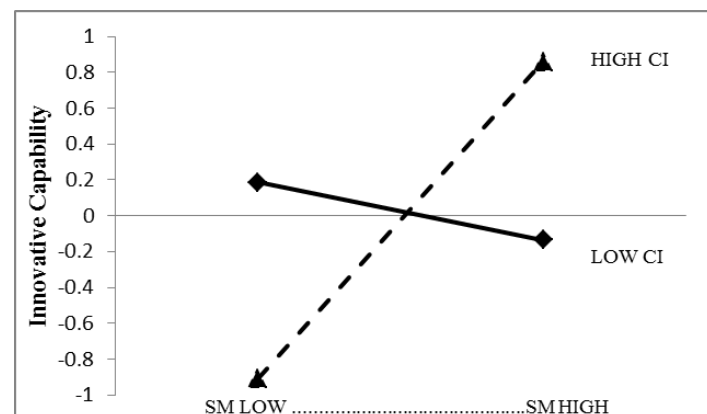
Notes: Ovals signify latent constructs; Rectangles are objective indicators.

Figure 2 Moderating Effects of Environmental Factors

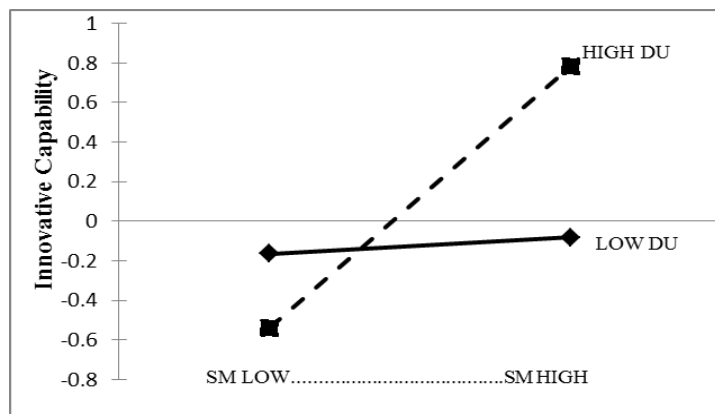
Panel A: Interaction effects of Environmental Complexity (Ecxy) on Self-monitoring(SM) – Innovative Capability link.



Panel B: Interaction effects of Competitive Intensity (CI) on Self-monitoring – Innovative Capability link.



Panel C: Interaction effects of Demand Uncertainty (DU) on Self-monitoring – Innovative Capability link.



Panel D: Interaction effects of Environmental Munificence (EM) on Self-monitoring – Innovative Capability link.

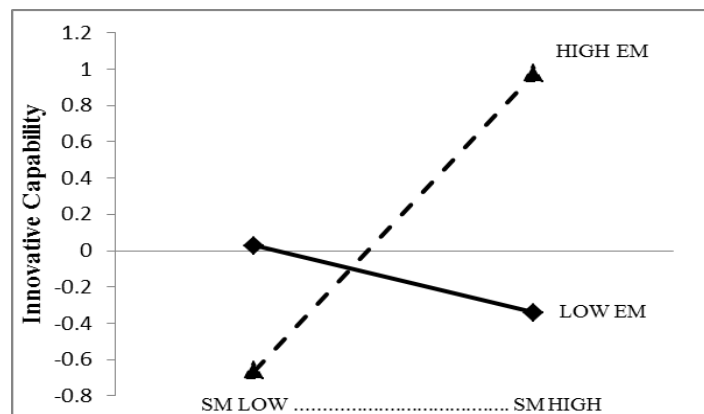
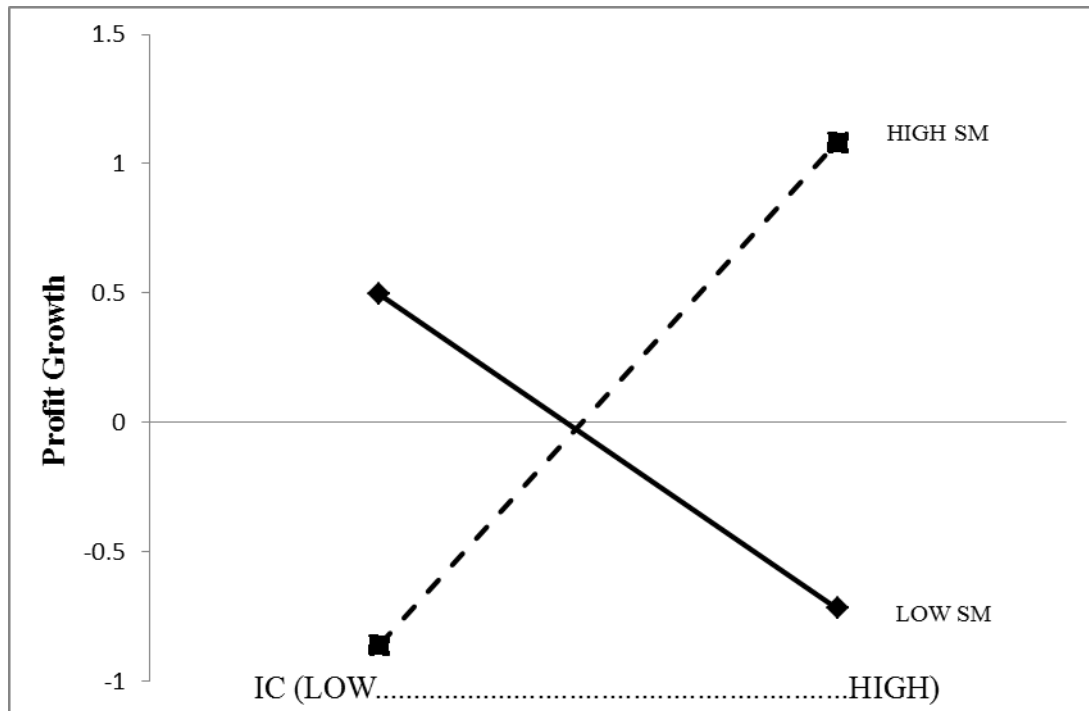


Figure 3 Moderating Effects of Self-monitoring on the Innovative Capability(IC) – Profit Growth Link



Notes: Profit growth = $(Y_{2012} - Y_{2011}) / (Y_{2011})$

APPENDIX Scale items for construct measurement

Items (Respondents, time)	Source
Self-Monitoring: (CEO, time 1) 5-point Likert-type: “strongly disagree” to “strongly agree”	Lennox & Wolfe (1984)
Dimension 1: Ability to modify self-presentation	
I have the ability to change according to the situation in social settings. I have the ability to control the way I come across to people depending on the impression I wish to give them When I feel that the image I am portraying isn't working, I can readily change it to something that does I have trouble changing my behavior to suit different people and different situations I have found that I can adjust my behavior to meet the requirements of any situation I find myself in Even when it might be to my advantage, I have difficulty putting up a good front Once I know what the situation calls for, it's easy for me to regulate my actions accordingly	
Dimension 2: Sensitivity to expressive behavior of others	
I am often able to read people's true emotions correctly through their eyes In conversations, I am sensitive to even the slightest change in the facial expression of the person I'm conversing with My powers of intuition are quite good when it comes to understanding others' emotions and motives I can usually tell when others consider a joke to be in bad taste, even though they may laugh convincingly I can usually tell when I have said something wrong by reading it in the listener's eyes If someone is lying to me, I usually know it at once from that person's manner of expression	
Innovative capability: (CEO, time 1) 5-point scale: “weak” to “strong”	Subramaniam & Youndt (2005)
Dimension 1: Incremental innovative capability	
Innovations that strengthen your existing product/ service lines. Innovations that strengthen your expertise in existing products/services. Innovations that strengthen how you currently compete.	
Dimension 2: Radical innovative capability	
Innovations that result in significantly superior products/services. Innovations that result in products/services that are significantly different from your current products/services. Innovations that require your firm to acquire new technical/marketing skills.	

APPENDIX continued	
Items (Respondents, time)	Source
Environmental Complexity: (CEO, time 1) Formative scale; 5-point Likert-type: “strongly disagree” to “strongly agree” The environment causes a great deal of threat to the survival of our firm Product demand is easy to forecast Actions of competitors are generally quite easy to predict Government interference is low	Miller & Friesen 1983; Green, Covin, & Slevin (2008)
Demand Uncertainty: (VP, time 2) 7-point Likert-type: “strongly disagree” to “strongly agree” In our business, customers’ preferences have changed quite a bit over time Our customers tend to look for new products and services all the time. We are seeing demand for our products from customers who have never bought them before. It is difficult to predict demand changes in our market.	Jaworski & Kohli (1993)
Environmental Munificence: (VP, time 1) 5-point Likert-type: “strongly disagree” to “strongly agree” Our markets are rich in investment capital Economic development programs offer sufficient support for our business community Our markets are rich in profitable opportunities	Baum & Wally (2003)
Competitive Intensity: (VP, time 1) 5-point Likert-type: “strongly disagree” to “strongly agree” Competitive intensity is high in my industry Customer loyalty is low in my industry Severe price wars are characteristic of my industry Low profit margins are characteristic of my industry	Miller & Friesen 1983; Jaworski & Kohli (1993)

CHAPTER 4: DRIVING GROWTH THROUGH CAPABILITIES: ROLE OF CEO TIES

A paper to be submitted to *Journal of Marketing Research*

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ABSTRACT

This article examines the effect of firms' marketing and innovative capabilities on profitability over time. Using theoretical arguments from social capital and dynamic capabilities literatures we argue that capabilities are enhanced and appropriated through the utilization of CEO's external resources. We build testable hypotheses using CEO's external ties i.e., informal social relationships maintained by the CEO with business and institutional/political entities outside the firm as additional source of opportunities, knowledge, and resources for marketing and innovative capabilities. We test these hypotheses by integrating perceptual data from senior managers with annual profits over four years. Results support these arguments and reveal that the effect of innovative capabilities on firm growth is stronger at higher levels of CEO's business and political ties. Additional analyses also reveal that CEO's ties reduce firm risk by minimizing firm's profit volatility over time.

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Introduction

An unpredictable business environment, volatile customer demands, aggressive competitor actions, and an unprecedented leap in technological growth are driving firms to seek novel ways to conduct their business (Charan 2013; Hitt et al. 2001). Firms that embrace such complexities as fruitful opportunities for growth tend to outperform competitors and survive in the long run (Charan 2013). Firms take advantage of marketplace opportunities through purposeful creation and deployment of organization-wide capabilities (Teece, Pisano, Shuen 1997; Helfat et al 2007). Capabilities are the ability of the firm to combine, reconfigure, and adapt existing resources and externally derived competencies to meet the rapid changes in the marketplace (Teece et al 1997; Eisenhardt and Martin 2000). The importance of firm capabilities and its significance in driving firm performance is well documented (see Helfat et al. 2007 and Teece 2011 for a comprehensive coverage on this topic).

Theories of competitive advantage, based upon firm capabilities suggest that marketing and innovation are two critical capabilities that drive firm growth (Day 1994; Drucker 1954). Marketing capabilities through customer relationship management (CRM) processes and systems influence customer value creation (Jayachandran et al. 2005; Morgan 2012) and innovative capabilities drive profitability through new products and technologies (Teece 2007). However, firms that are typically small rarely possess continued and stable support of in-house resources/capabilities to fuel their growth (Yli-Renko and Janakiraman 2008). Yet, such firms excel in performance growth through successful development of new products and commercialization of those through effective marketing and innovative

capabilities. This raises a question, as to what drives firm's capabilities for growth? More so, small firms in emerging markets characterized by other external challenges that are unique and dissimilar to what their western counterparts face, show continued growth (*The Economist*, 2010). Weak institutional policies and governmental norms, limited market regulation leading to intense competition, poor resource availability etc., force firms in emerging markets to compete with unconventional strategies mostly driven by their social capital (Peng and Heath 1996). However, we don't know much about how firms in such unique market context leverage their capabilities through social capital for continued profitability and growth (Sheth 2011).

In this study we attempt to investigate the relationship between capabilities and profit growth by examining how the social capital (Adler and Kwon 2002) that is embedded in a CEO's business and political ties (Peng and Luo 2000) influence this link. CEOs are at the apex of firm activities and occupy a unique and powerful position as the ultimate authority to provide vision, initiate strategic plans, and execute decisions. The CEO then is an important cogwheel in building and leveraging firm's capabilities (Govindarajan and Trimble 2011). We argue based on social capital theory (Adler and Kwon 2002) that CEO's ties with external stakeholders both business and political, help leverage a firm's capabilities by providing greater access to market information, financial support (Batrajal 2003), legitimacy (Sheng, Zhou, and Li 2011) and complementary capabilities (McEvily and Zaheer 1999). Upper echelons and strategic leadership literatures also provide additional support to our arguments as these theories emphasize CEO's importance and significance in influencing firm's strategic choices, actions, and ultimately performance (Hambrick and Mason 1984; Hambrick 2007; Finkelstein, Hambrick, and Cannella, 2009). Given these rich and

supportive theoretical arguments, it is surprising to note that rarely have marketing studies investigated the possibility of CEO side factors effecting firm level outcomes (see Yadav, Prabhu and Chandy 2009 for an exception).

In this study, we integrate the literature on capabilities with the literature on social ties of executives to investigate the moderating role of CEO's business and political ties on the performance impact of marketing and innovative capabilities. Our work is novel and extends current research in several ways. First, unlike previous studies that focus on explaining performance variation using a static 'level' of annual sales, profits, or other financial metric, we assess 'dynamic' growth factors of profit in terms of profit growth and change in profit growth using latent growth curves. We investigate how firms' profits are shaped by the interaction of ties with capabilities, and also how such effects vary (heterogeneity of performance impact) across firms to drive a competitive advantage. Research based on capabilities have almost completely devoted their attention in explaining 'static' performance-level variation across firms and have rarely shown impact on 'dynamic' performance-growth and shape (Morgan, Slotegraaf, and Vorhies 2009).

Second, it enriches the executive ties literature by demonstrating that CEO ties can change the strength of impact of a firm's primary capabilities on its profitability and growth. This integrated role of external ties with existing processes within the firm validates a key notion that value inherent in resources/capabilities possessed by a firm are appropriated through capabilities that are boundary spanning (Adler and Kwon 2002; Dyer and Singh 1998). Third, previous literature on capabilities and executive ties has merely considered effects on revenue generation. As an additional step we introduce and measure firm risk in terms of profit volatility to underscore a neglected issue of mitigating firm risk. Finally, our

focus on SMEs from India adds unique insights to business processes of firms from emerging markets which have received scant attention (Sheth 2011).

Literature Review

CEO External Ties.

External ties represent relationships that top managers (and more often the CEO) maintain with individuals, firms, and institutions outside of their organizations. These relationships rest on informal networking activities for attaining some economic benefits for the firm (Peng and Luo 2000). Literature on strategic leadership also posits that such ties can also drive strategic choices made by the firm and thereby its performance (Geletkanycz and Hambrick 1997). Overall, different streams of literature seem to suggest that inter-personal relationships among executives outside of their organizations could have a profound impact at the firm level. Such executive ties could be broadly classified as business and political ties (Peng and Luo 2000).

Business Ties. Business ties refer to informal relationships with business executives at other firms, such as suppliers, buyers, and other market collaborators (Dubini and Aldrich 1991). These ties provide the CEO with valuable market information and help them to better align the firm with external environmental contingencies. Such ties can shape the CEO's perception about the market and help them choose strategic initiatives that are best to cope with market movements (Geletkanycz and Hambrick 1997). For example, through sharing of information, ties with suppliers enable the firm to avoid any adverse situation regarding materials and delivery in the short run. Timely information and delivery become more critical at times of challenging economic conditions in the marketplace (Cao, Simsek, and Pansen

2012). Ties can also strengthen the relationships and trustworthiness between firms in the long run. Similarly, relationships with distributors and other vendors provide the CEO with vital information and knowledge about the market situation with regards to specific services provided by vendors. Further, as relationships improve over time, familiarity and closeness develop amongst business partners, thus making partner firms more willing to share and provide resources quickly and in increased volume (Moran 2005).

Maintaining good relationships with executives of competitor firms improves chances of inter-firm partnering, subsequently providing opportunities to collaborate for collective business operations (Gulati 1999). Such horizontal alliances provide firms with opportunities to innovate (Rindfleisch and Morrman 2001; Davidsson and Honig, 2003) and build networks of relationships that could provide competitive advantage (Blyer Coff 203; Gulati, Noharia, and Zaheer 2000). Such ties also become a channel or means by which firm share and acquire resources in a timely manner (Dyer and Singh 1998). In addition, ties with firms with similar business interests broaden a firm's knowledge base about the market, and provide business opportunities that could impact the firm's strategic choices and performance outcomes. Similarly, pacts within a firm's network with technology collaborators and participation in regional associations expose the firm to new ideas, technologies, and opportunities leading to acquisition of newer capabilities (Mcevely and Zaheer, 1999). Ties with executives at buyer or customer firms are of utmost importance in engendering customer loyalty through trust and relationship building activities (Palmatier 2007). Such relationships are paramount to building long-standing relationships with existing customers thereby improving volume of sales and business opportunities with existing customer base. As these relationships strengthen over time, they become excellent sources of feedback and

provide opportunity for co-creation of new products with customers (Prahalad and Ramaswamy 2004). Further, ties with customer firms may provide opportunities to identify new customers as the executives may refer the CEO to new firms that may be in need of services offered by the focal firm. Thus CEO ties with a customer base could act as a potential market-scanning mechanism in attracting new customers through referrals. As legitimacy (Dacin, Oliver, and Roy 2007) within existing customer base improves due to informal relationships, CEOs gain more visibility amongst the customers' business networks due to referrals. Thus CEO ties with customers act as a double jackpot in strengthening relationship with existing customers, while at the same time opening up avenues for an efficient way to attract new customers. Attracting new customers through referrals is efficient as the cost involved in search and identification of new customers is dramatically reduced and the probability of converting the potential referral to an actual customer is very high (Verhoef, Franses, and Hoekstra 2002). Ultimately, such business ties offer profound scope and opportunity for improving economic benefits that could be derived for the firm.

Political Ties. Political ties refer to informal social relationships that a CEO (for the present study's context) maintains with government officials at various levels of administration, and with officials in regulation agencies and/or various institutional bureaus (Dubini and Aldrich 1991; Peng and Luo, 2000). According to social network literature, top managers form business ties primarily to obtain access to information and resources. On the other hand, they form political ties with government and institutional bodies to preempt any adverse market place changes and to avoid tensions and pressures arising from institutional bodies (Peng and Health 1996; Peng and Luo 2000). Political ties are particularly important in emerging markets where local government institutions, policy makers, and institutional

forces have considerable power and influence over business operations (Peng and Luo 2000; Khanna, Palepu, and Sinha 2005; Sheth 2011). Firms, particularly manufacturing firms, routinely interact with several legal and government bodies for approval, feedback, and allocation of resources. In emerging markets like India, local regulatory bodies and officials have a strong role starting from approval of projects, to allocating resources, to setting up of PPE (plant, property, and equipment), and to control labor. Virtually, local institutional players play a very strong role in the everyday operations of these firms. While on one side these institutional bodies serve an important role in making sure firms adhere to legal business norms, on the other side these bodies involve in arbitrary intervention for personal benefits. Firms have to spend significant amount of time in trying to identify ways and strategies to stay from any dangers arising from such interventions. One of the practical ways is to gain a good relationship with officials in these bodies, primarily with an avoidance motive, i.e. to prevent any adverse intervention from these players. (Sheth 2011; Sheng, Zhou, and Li 2011; Siegel 2007). At the same time, such ties also aid in accelerating critical business needs, from gaining permission to setup a new factory, to research new fields, to build alliances with other partners domestically and internationally, and to solve any labor problems which might be politically driven. Also such ties might increase the rate at which these firms respond to environmental uncertainty as they can capitalize on these political ties to maneuver the challenges in the marketplace.

Managerial ties represent executives' boundary spanning activities and their associated interactions with external entities (Geletkanycz and Hambrick, 1997). Both business and political ties involve informal, interpersonal social relationships rather than formal, professional connections. Social capital theorists have argued in support of these

boundary-spanning external relationships as bridging ties associating it with the success of an individual or a firm based on the direct or indirect links to other actors in social networks (Adler and Kwon, 2002). Individuals embedded in such a social environments gain new innovative ideas and opportunities through interactions with associated network members (Tsai and Kilduff 2003). In sum, CEO's business and political ties provide a dual benefit to the firm in strengthening its existing capabilities and aiding in mitigating external contingencies thereby enhancing performance outcomes.

Firm Capabilities

A dynamic capability is the capacity of an organization to purposefully create, extend, or modify its resource or asset base (Helfat et al. 2007). Assets are stocks of intangible and tangible endowments owned or controlled by the firm (Day 1994; Teece 2007). Capabilities are considered combinations of routines or repetitive patterns of a firm's interdependent actions and processes (Parmigiani and Howard-Grenville 2011). Thus routines form the building blocks of capabilities and provide an 'actionable' take on their interpretation. Extending this routine based view, recently scholars have noted that capabilities could be classified as either ordinary or dynamic (Winter 2003). The former refer to the capabilities that aid in a firm's regular operations while the latter comprise those combinative routines that involve creation and change within a firm.

CRM Capabilities. Recent attention and trends in Customer Relationship Management (CRM) (Reinartz et al. 2004, Srivastava, Shervani and Fahey 1999) have associated CRM capability as a unique and substantive part of marketing capabilities. A firm's CRM capability is focused on the processes or routines that aid the firm in identifying prospective customers, strengthening relationships with valuable customers, and selectively

diluting non-profitable customers. In short, CRM capability focuses on managing the customer as a stakeholder and tries to improve customer level profits (Rust et al. 2004; Jayachandran et al 2005; Ramaswami et al. 2009). Another stream of literature in marketing views CRM processes from an organizational culture perspective (Jayachandran et al 2005). This view emphasizes that the ability of a firm to be customer orientated (Jaworski and Kohli 1990; Narver and Slater 1990), is primarily driven from the dominant perspective of market orientation, which considers information or market intelligence as the key driver of a firm's competitive advantage and profitability. The processes of gaining market intelligence, disseminating it within the firm, and responding to it through plans and actions form the core theme of market orientation literature. CRM is seen as a firm-level orientation that guides the firm toward implementation of CRM activities based on a common mindset in pursuing customer relationship as an asset and devising processes in building and nurturing this asset (Day 2000). In addition, a CRM-oriented firm needs the support infrastructure and systems to motivate the employees towards achieving this common goal. This system not only emphasizes the importance of driving a firm's actions by putting customers' needs at the center, but also recognizes the marketing and non-marketing personnel who champion this cause by collectively initiating plans and actions to build a CRM culture. In sum, CRM as a distinctive capability occupies an important place in a firm's strategic process as it drives value creation for both firm and its customers (Boulding et al. 2005; Payne and Frow 2005). CRM processes embedded within the firm's culture and its system drives firm performance in terms of greater customer satisfaction and retention through improved relational information processes (Jayachandran et al. 2005) and greater employee involvement (Srinivasan and Moorman 2005). Further, studies have empirically validated CRM processes

to increase customer knowledge base of the firm that subsequently improve customer satisfaction (Mithas, Krishnan, and Fornell 2005). Such improvements in customer based performance measures based on CRM processes earn increase profits for firms (Boulding et al. 2005).

Innovative Capabilities. Innovation broadly refers to identifying and using opportunities to create new products and services (Van de Ven, 1986). A product-oriented definition suggests that firm innovativeness is based on a firm's willingness and ability to adopt new ideas that cause the development of new products (Rubera and Kirca 2012). A more general view of innovation refers to the process a firm uses to develop and bring new products, services, or technologies to the market place (Hauser, Tellis, and Griffin 2006). Two important themes of this generally agreed notion is: first the novelty factor (i.e., newness) and, second the commercial factor (i.e., market value). As this study is focused on firm capabilities, we take the process view of innovation (Lee, Lee, and Pennings 2001). Thus for this study, innovative capability refers to the ability or the capacity of the firm to purposefully generate different types of innovations.

Innovative capabilities can be incremental or radical (Subramaniam and Youndt 2005; Chandy and Tellis 1998, 2000). Incremental innovation capabilities refer to the capacity of the firm to generate innovations that modify, refine, or reinforce existing products, services, or technologies. Radical innovation capabilities refer to the capacity of the firm to generate innovations that majorly transform existing products, prevailing services, or current technologies, thereby even making them obsolete. As innovative capabilities are knowledge-dependent processes (Subramaniam and Youndt 2005) incremental and radical innovation capabilities could also be viewed as processes that exploit and disrupt existing

knowledge base of the firm. Incremental innovation capability focuses on the firm's attention to improve upon existing products or services by reinforcing the prevailing and current knowledge base of the firm. Radical innovation capability focuses on purposefully making existing products or services obsolete by transforming current knowledge into something really new to the firm and the market. These two types of innovation capabilities enable a firm to offer greater customer value through differentiated new product offerings and services; in turn, being unique and differentiated can lead to higher financial performance (Rubera and Kirca 2012; Sorescu and Spanjol 2008; Terziovski 2010). Highly innovative firms outperform their competitors in coming up with new products/services ahead of the competitors and catering to the evolving new demands of the customers (Miller 1984). Innovative capabilities are significant assets a firm possesses and constantly develops to effectively deploy new products/service to compete and grow within their industry (e.g. meta-analysis by Rubera and Kirca 2012 reveal a moderately high effect size on the innovativeness-firm performance link)

Hypotheses

From the above review on capabilities and ties literature, it is evident that studies have shown support for the direct influence of capabilities (Morgan 2012) and managerial ties (Peng and Luo 2000) on firm performance. Against this backdrop, we explore the primary research question we set to investigate in our study, 'how CEO's ties influence the capabilities-performance relationship?' In doing so, we depart from current research that views the knowledge capital of capabilities and social capital of ties as direct mechanisms driving competitive equity and take a more interactive process-based approach that demonstrates the contingent and complementary value of capabilities with ties. This reveals

the significance of CEO's ties and showcases the importance of embeddedness in extracting value inherent in firm's capabilities, especially for small firms in emerging economies.

Interaction Effects of Business and Political Ties. The overall logic we use in this section to develop arguments to support the moderating role of ties on the performance impact of capabilities is the following. CEO's managerial ties provide firms to garner critical and reliable market information from business partners, and to develop institutional and governmental support from political authorities. Therefore CEO's investment in building and nurturing these informal ties foster development of social capital within the firm. However, for the acquired resources from these ties to generate performance benefits, those resources have to be effectively deployed and efficiently allocated using firm's capabilities. More specifically, with superior CRM and innovative capability, firms can effectively channel this social capital for increased market and customer performance that consequently benefit firm profitability. In addition, because investments needed to build capabilities are hard on budgets for SMEs, it is essential for them to maximize revenue generation potential from such investments. Further, unlike the larger and more established firms, SMEs lack visibility and legitimacy and suffer from liability of smallness. To get around any adversities arising due to these factors, CEOs tend to utilize ties with government officials, particularly local regulatory authorities (within their state or district) to sail their firm through these muddy waters. Political ties' favor extend beyond aiding in faster execution of new business initiatives, it also helps to co-opt ambiguity and uncertainty in the business environment. CEOs in smaller firms are naturally inclined and interested to establish ties with business firms and political authorities because of their motive to rapidly grow and sustain their business. Such ties are an effective means to gain legitimacy given a small firm's inherent

weakness due to liability of age and small size unlike established large firms that have stable partners from both business and political sides (Dubini and Alridch 1991).

A firm with superior marketing capability particularly customer relationship management (CRM) processes excels in identifying customers' needs and serving those needs through better targeting and positioning of its products relative to competitors (Day 1994, Jayachandran et al. 2005; Morgan 2012). CRM processes as an overall firm culture infuses other functional departments the necessity of customer value creation as the foremost activity of business processes (Srivastava, Shervani, and Fahey 1999) thereby bringing about a collective cohesive effort within the firm to serve its customers. Supporting such CRM processes with a system to incentivize and motivate employees for nurturing customer relationships and providing supportive infrastructure to carry out these activities enables the firm to enjoy profitability from CRM activities (Jayachandran et al. 2005). As noted previously CEO's executive ties with fellow business partners like customers, channel partners, technology collaborators, and horizontal relationship with similar business firms exposes the firm to new ideas, information and market place opportunities (Geletkanycz and Hambrick, 1997). Further such informal relationships also provide joint cooperative activities in terms of collective action in capitalizing on new market opportunity and also in joint problem solving in terms of any business exigencies (McEvily and Markus 2005). CEO's business ties could be broadly bifurcated into informal relationship with vertical partners – i.e. suppliers and customers, and horizontal partners – i.e. technological collaborators, alliance partners. Ties with suppliers and customers along the business value chain provide invaluable market information like customer needs, enhanced forecasting of orders, and quicker delivery of raw materials and timely alerts to business disruptions if any. Ties with

horizontal alliance partners and technological collaborators infuse the firm with additional business support and resources in terms of know-how and new technologies. In addition through these ties, CEOs are able to develop a more central position of their business within their industry circle, thereby improving visibility and spreading trustworthiness of their firm's business. In sum, firms with strong CRM capability could effectively '*sense and respond*' (Day 2011, Teece 2007) to the strategic information and resources provided by CEO's ties, consequently achieving better performance than competitors; i.e. as CEO's ties with business partners grow stronger, the firm is equipped with invaluable strategic information and additional resources that strengthen its abilities to effectively utilize its marketing capabilities to better serve its customers. More specifically, firms with stronger marketing capabilities benefit from the intelligence and resources acquired via CEO's business ties, because such firms have the skillset and opportunity to effectively utilize that intelligence and tap into those resources to successfully serve their customers.

H_{1a}: CEO's business ties positively moderate the effect of marketing capabilities on firm performance.

As reviewed previously CEO's ties with governmental officials have a distinctive and important purpose aside from the benefits derived through business ties. Such ties while providing beneficial effects in terms of support during adverse institutional changes, policy make overs, and politically driven business issues may also have detrimental effects due to political intervention by regulatory and government authorities for their personal benefits. However, we argue here that CEOs may be able to overcome or at the least minimize such detrimental effects through the relationships built through political ties. Further, CEOs could favorably utilize these ties for firm specific benefits by exploiting the relationship for

expanding the scope and scale of business. In contrast, CEO's having negligible levels of contact with government and institutional bureaus have a tough and challenging task in maneuvering their firm's strategic initiatives through official norms and procedures. However, a CEO armed with strong political relationships can use their established legitimacy and familiarity to quickly and smoothly execute the formalities demanded by government bodies. Thus CEOs gain more confidence, clarity, and speed in driving firm level changes and driving profitability from existing firm capabilities. Therefore, firms with stronger marketing capabilities benefit from the support acquired via CEO's political ties, because such firms have the ability to effectively serve their customers' changing needs with least resistance and hindrance from uncertain and many times unnecessary governmental and institutional norms.

H_{1b}: CEO's political ties positively moderate the effect of marketing capabilities on firm performance.

Innovative capability is critical for firms to achieve superior performance, particularly for small and medium manufacturing firms. These capabilities enable a firm to develop innovative products, to improve existing products to serve customers' changing and newer needs. The markets these firms operate in are highly competitive and hence product differentiation through new product introduction becomes a necessity for achieving customer satisfaction and loyalty (Terziovski 2010). Firms with superior innovative capability could also enjoy charging premium prices for products which are radically new, i.e. new to the market, customer and the firm (Chandy and Tellis 1998). We argue that CEO's business and political ties favorable leverage the performance impact of a firm's innovative capabilities. CEOs through their business ties gather significant social capital in terms of appropriating

new innovations through collaboration with technology and channel partners and co-creation through customers (Daidsson and Honig 2003; Yli-Renko, Autio, and Sapienza, 2001). These external knowledge acquisitions accentuate and precipitate the benefits imbibed from firm's innovative capabilities. Furthermore, such ties help the CEO to gauge the pulse of the market for the current and potential new products/service offerings from the firm. This alerts the firm to manage potential risks that may arise due to any new product introductions. These informal ties with business partners bring in the necessary agility for the firm to be reactive and flexible in terms of adapting, anticipating, and proactively responding to the market changes (Day 2011). Such ties also promote partnerships with technological collaborators facilitating transfer of new knowledge and developing state of the art technology ahead of the competitors (Rindfleisch and Moorman 2003). Thus greater the CEO's network with external business stakeholders, greater is the CEO's knowledge to orchestrate profitable outcomes from the firm's existing innovative capabilities. Therefore:

H_{2a}: CEO's business ties positively moderate the effect of innovative capabilities on firm performance.

CEO's political ties strengthen the firm's political legitimacy, status, and provide the firm with crucial access to regulatory and policy information (Sheng, Zhou, and Li 2011). Such overall governmental support and information are critical resources for SMEs in emerging economies (Khanna and Palepu 1999; Peng and Luo 2000) to win new business deals and orders. With these ties firms can gain institutional support in terms of quicker and cheaper acquisition of financial capital (Batjargal 2003) and enjoy exclusive governmental subsidies. Furthermore these ties also help firms to get endorsements from local regime for catering services to any institutional orders. Particularly, for manufacturing SMEs in India,

local regime has significant say in establishing new factories or serving newer markets. Thus firms with stronger innovative capabilities benefit from these informal relationships with local authorities, as they can quickly and efficiently maneuver their new initiatives and enjoy significant competitive advantage due to the local governmental support. Together, superior innovative capabilities and political ties emerge as a resource that is extremely challenging for the competitors to mimic or imitate. Also, because ‘*inside-out*’ strategic processes (firm’s internal innovative capabilities) synergize with ‘*outside-in*’ processes (CEO’s political ties) this combination minimizes potential gap between firm’s existing capabilities and market need, consequently providing sustainable and profitable growth over time (Day 2011). In sum, CEO’s political ties reinforce benefits of firm’s innovative capabilities and minimize any potential adversarial consequences from institutional authorities. Therefore,

H_{2b}: CEO’s political ties positively moderate the effect of innovative capabilities on firm performance.

Method

Data Collection and Sample Characteristics

We combined data derived from multisource perceptual surveys of top management executives with objective performance metrics (namely, annual profits for four years) to test the study’s hypotheses. The firms in our sample are small and medium manufacturing firms (SMEs) in India. A random sample of 900 manufacturing firms from five major cities in India (Delhi, Chennai, Hyderabad, Bangalore, and Mumbai) was initially selected from the Indian ‘Chamber of Commerce’ industry directory. Perceptual data about firm’s capabilities and executive ties were collected from two sources in each firm: the chief executive officer (CEO) and a top marketing management executive (usually the VP of marketing). We

followed the suggestions of Hoskisson et al. (2000) for administering surveys in emerging economies by collaborating with local researchers. A national marketing research agency firm was chosen to administer the survey. We conducted a key informant check using the three-item scale developed by Kumar, Stern, and Anderson (1993) that evaluated how confident, knowledgeable, and involved the VPs were with firm level capabilities. We obtained 201 completed survey responses from CEOs and VPs. However we could gather annual profits only from 191 of the firms for the next three years.

Measures

We measure the study's constructs using existing measures validated by previous studies. We measure a firm's customer relationship management (CRM) process using two dimensions developed by Jayachandran et al (2005). These two dimensions comprehensively capture the firm culture based customer relationship orientation (four items) and organizational system based customer-centric process systems (six items). We capture firm's ability to generate different types of innovations using the six item innovative capability scale developed by Subramaniam and Youndt (2005). We use scales from Peng and Luo's (2000) work to capture CEO's two facets of managerial ties – business (five items) and political (four items). All scale items and source are listed in Appendix A. We operationalize the dependent variable of performance growth in a unique and robust fashion. We capture objective annual profits from the firms' financial records for four time periods and model profit growth, and rate of change in profit growth using latent growth curve technique (Preacher, 2008). We describe this in our measurement model section next.

Measurement Model. We assessed the measurement integrity of the study's constructs using confirmatory factor analysis (CFA). We ran a single measurement model CFA with all

latent constructs allowed to freely correlate with each other and tested the validity of the model and the constructs using model fit indices, standardized factor loadings, composite reliability, and average variance extracted (Bagozzi and Yi 2012; Fornell and Larcker 1981). As the operationalization of the constructs involve both reflective and formative measures and we use latent growth curve modeling of the dependent variable, we first detail operationalization of each construct separately before reporting the measurement model results. Specifically, we treated business ties as a first order reflective and a second order formative construct (Jarvis, MacKenzie, and Podsakoff 2003) because of the direction of causality between the latent construct and the observed indicators. This operationalization of business ties as a formative index is consistent with studies which have utilized this construct (Sheng, Zhou, and Li 2011). In the first order factor, we extracted two factors each reflected by two items. In the second order factor we formed the formative construct using the first order reflective factors. This measurement was conceptually and methodologically well fitting for two reasons. First, for a formative index, strong correlations between indicators cause collinearity problems (Diamantopoulos and Winklhofer 2001). We found the individual indicators to be moderately correlated and a simple EFA with orthogonal Varimax rotation revealed two factors which were not correlated. Second, the individual indicators and the extracted reflective factor did not share a common concept amongst each other while collectively formed the business tie concept.

Political ties were operationalized as a first order reflective construct similar to previous studies (Peng and Luo 2000). CRM was operationalized as a second order reflective construct of two reflective concepts of CRM orientation and CRM system. First, we individually capture the CRM orientation and CRM system using their respective items as

reflective concepts (Jayachandran et al. 2005). However, both these factor were strongly correlated and conceptually captured the CRM process within a firm together. This fits well with the study's intent in capturing the CRM process within the firm as a whole. Therefore we modeled CRM process as a second order reflective concept that provides a richer and comprehensive way to operationalize the concept of CRM process within a firm (Jayachandran et al. 2005).

The dependent variable is performance growth. We operationalize this using annual profits captured for four time periods. We use latent growth curve to model profits across time, to capture the average level of profit, profit growth, and change in profit growth over time. Latent growth curve is a CFA technique which helps to extract latent growth factors from multiple time period indicators (Preacher, 2008). Here we extract three growth factors in terms of intercept (average level of profit), slope (profit growth), and slope-change (change in profit growth). A unique feature of growth curve modeling is the ability to simultaneously capture within-firm and between-firm differences (see Figure 2):

$$\text{Profit}_{ij} = \text{Intercept} + (\text{Slope}) * \text{time}_{ij} + (\text{Quadrature}) * \text{time}_{ij}^2 + \text{fsize}_i + \varepsilon_i$$

where, i - four time-periods from 0 to 3,

j - firms

fsize – firm size

ε_i - within firm variance

Each of the growth factors, intercept, slope and quadrature have their variances estimated which represent the between-firm differences. Firm size represented by number of employees is the time varying control variable, i.e. each year's firm size is controlled for that year's profits. As a first step in the measurement model, the unconditional growth curve with time varying covariate is estimated to extract the three growth factors.

As mentioned earlier, we ran a single CFA model with all the above modeled latent constructs allowed to freely correlate with each other. Since the measurement model involves many latent factors using both reflective and formative constructs with higher order specification and latent growth factors, the model is complex and could have potential identification issues and Heywood cases (i.e. negative residual variances) due to large number of parameters being estimated compared to sample size. Therefore we used Bayesian structural equation modeling (BSEM) (Muthén, and Asparouhov 2012) to estimate the measurement model CFA rather than the traditional maximum likelihood (ML) based estimation. Also, as we detail later BSEM approach provides us with the ability to extract Bayesian factor scores also called plausible values to be used in structural model estimation. As the items-to-sample ratio (26:191 approximately 1:7) was highly unfavorable in satisfying (1:20) the asymptotic properties of covariance based modeling (Bollen, 1989) we computed random item-parcels to be used as indicators of latent constructs. BSEM provides several advantages by usage of diffused priors for factor loadings, and residuals, and maximum likelihood based starting values for the parameter estimates. This overcomes identification problems and any convergence issue to due to smaller sample size compared to the large number of parameters being estimated. We used the default non-informative priors in Mplus (Muthen and Muthen 2013) of normal distribution with mean zero and large variance for factor loadings, inverse Gamma for latent variable covariance. We specify informative priors for the freely estimated factor loadings for slope and slope-change factor using normal distribution with mean three and nine respectively and large variance. These mean values reflect the prior knowledge that the slope factor is linear in growth while the slope-change is curvilinear. Further, as it is reasonable to assume that firm size over time are strongly related,

we specify an informative prior for their correlations with a mean of .5 and variance being .05. As the formative construct of business ties is assumed latent, it is pertinent to specify residual variance for the formative construct (Bollen and Bauldry 2011). So we provide a small informative prior using normal distribution with mean .1 and variance .1. This specification of formative construct provides an additional advantage of BSEM, because a ML based approach to specification of latent formative construct with residual variance is non identified unless reflective indicators are available to specify a MIMIC model (Kline 2006).

The model fit indices for Bayesian CFA are validated using steps illustrated by Muthén and Asparouhov (2012). We ran the model with 200000 iterations, two MCMC chains with the default convergence criteria of .05 for the posterior scale reduction (PSR). The fit is diagnosed based on whether the PSR value is closer to 1, posterior predictive (PP) p -value greater than .05, and the 95% PP limit confidence interval for the difference in the real and replicated data contains zero. The model showed good fit with PSR = 1.003, 95% PP interval = (-9.054, 101.394) and the PP p -value at .049. As a sensitivity analysis we re-ran the model with different iterations and MCMC chains and found the PSR and PP value to be similar and convergent to our original estimation. For a final check, we also examined the posterior predictive checking plot of the model, the autocorrelations plots which showed strong decay and trace plots of estimated parameters which showed clear overlap amongst two chains.

Construct validity was evaluated by checking the standardized factor loadings, composite reliability, and average variance extracted (AVE). The standardized factor loadings for the reflective constructs ranged from .62 to .90 ($p < .01$). Composite reliabilities

ranged between .74 and .89 and AVEs ranged from .40 to .80. Further, AVEs were greater than the squared correlations between corresponding latent constructs. Overall, these indices provide strong convergent and discriminant validity of the scales used (Bagozzi and Yi 2012).

Bayesian Factor Scores or Plausible Values. As noted above, another significant advantage of BSEM is the ability to extract Bayesian factor scores which are also called as plausible values (Asparouhov and Muthén, 2010; Von Davier, Gonzalez, and Mislevy 2009) for use in the next step of structural model estimation. As the hypothesized model involves testing interactions on performance growth, it is imperative to arrive at an index for each latent construct so that higher order terms for interactions can be computed. One way would be to use summated scores; a second method is to use factor scores. Summated scores are biased due to unreliability issues and further, summated scores for the growth factors are not directly computable. Alternatively we could compute factor scores using traditional ML approach. However, as detailed by Skrondal and Lakee (2001), there are many disadvantages and weaknesses in using ML-based factor scores as observed variables in further analysis. Specifically ML-based factor score estimates (a) do not provide an accurate representation of the latent concept, (b) suffer from strong assumption of asymptotic properties and normality, (c) contribute to higher incidence of Heywood cases, (d) overestimate factor correlations and underestimate factor variances and (f) provide biased estimates and incorrect standard errors for the structural parameters in subsequent models (see Asparouhov and Muthén, 2010 for more thorough technical derivations and simulation studies). To avoid these weaknesses and potential biases in structural model estimates, we compute Bayesian factor scores or plausible values (Von Davier, Gonzalez, and Mislevy 2009).

A significant feature of Bayesian factor scores is that they are more accurate than factor scores computed using ML estimates. Also called as plausible values, Bayesian factor scores are estimated as distribution of factor scores for each subject over several imputed data sets (Asparouhov and Muthén, 2010). In this study we generate 30 imputed datasets from the same measurement model we ran above, to derive posterior distribution of the study's latent constructs. The imputation follows standard Bayesian procedures using multiple Markov Chain Monte Carlo (MCMC) chains and large number of iterations (here 200000). The posterior distribution of the factor scores are derived after MCMC iterations have converged. Convergence is determined using the Gelman-Rubin convergence diagnostic which considers the potential scale reduction (PSR) factor (Muthén and Asparouhov, 2012). Thus, plausible values for each latent construct, including the three growth vectors are then subsequently used in the structural by analyzing the 30 imputed datasets. In sum, in a single step through BSEM CFA we accomplish two things in an empirically robust fashion: first, estimate a complex measurement model involving formative, reflective, higher order constructs, and latent growth curve in a single step with proper specification and model identification; second, create multiple datasets for computing Bayesian factor scores for each of these latent constructs to be used as variables in the structural model.

Results

Table 1 reports the correlation and validity of the measures used in the study. Table 2 provides the estimates of the main effects and interaction effects. The variables used in the model are all plausible values derived from the measurement model. The independent (CRM and innovative capability- IC) and moderator variables (CEO's business ties - BT and political ties – PT) are mean centered for better interpretation and testing of interaction

effects (Aiken and West 1991). The main-effects model (Model M1) shows the effect of CRM, IC, and the two CEO ties (moderator variables) on the three latent growth factors. As the level, growth and change in growth of profit are correlated as per the measurement model estimates of unconditional growth curve controlled for firm size at each time period, we allow these growth parameters to freely correlate. The level and growth are correlated positive and significant (.47, $p < .001$) indicating that firms that start in high in profit level tend to grow faster. Profit growth (slope) and change in growth (curvilinear term) are correlated negative and significant (-.38, $p < .001$) indicating that firms that grow faster tend to grow at a decreasing rate depicting a growth pattern of decay beyond certain level. The mean value of level of profit is positive and significant (.52, $p < .001$), growth in profits is positive and significant (.17, $p < .05$) and change in growth is insignificant (.006, $p = .892$). Given this growth pattern across firms, main-effects model tries to explain how the profit growth across firms are affected at mean levels of CRM, IC, BT and PT. The results (Table 2, M1) show that IC has positive and significant effect on level of profit (.034, $p < .10$), on profit growth (.217, $p < .10$) and negative and significant effect on change in profit-growth (curvilinear term; -.182, $p < .10$). This shows that at average levels of other variables, innovative capability enhances (positive effect on level and growth) the profit growth of firms, and mitigates (negative effect on curvilinear term) the decay of growing firms. In models M2_a and M2_b we test the hypotheses relating to the interaction effects of business and political ties respectively.

In model M2_a, the interaction effects of business ties on innovative capability is significant and positive on level of profit (.172, $p < .05$), profit growth (.209, $p < .05$) and negative on change in growth (-.148, $p < .05$). Interactions effects of business ties on CRM

are statistically insignificant. Thus, we find support for H₂, but fail to support H₁. In model M2_b, the interaction effect of political ties on innovative capability is significant and positive on level of profit (.268, $p < .05$) and profit growth (.269, $p < .05$) and negative on change in growth (-.164, $p < .10$) supporting H₄. We find surprising results for interaction effect of PT on CRM: negative and significant on level of profit (-.169, $p < .05$) and other interactions effects on CRM are insignificant. These indicate that firms need strong business and political ties to transform their innovative capabilities to profit growth. However, although the interactions between CRM and ties are insignificant they seem to be in the opposite direction, negative. This calls for further investigation into differential impact of ties with regards to important capabilities within the firm.

We plot the interactions effect of ties on the effects of innovative capability on profit growth to probe the results in greater detail (Figure 3). As the endogenous variables are growth factors derived from latent growth curves (profit level, growth, and change in growth across time) direct effects of CRM, IC, BT, and PT on slope and growth factor are interactions with time (Curran, Bauer, and Willoughby 2004; Preacher, Curran, and Bauer 2006). Therefore, the interaction effects of ties with CRM and IC i.e. IC*BT, IC*PT, CRM*BT, IC*PT represent three-way interaction with time. So, the primary way to understand how profitability grows over these four time periods impacted by capabilities and ties, essentially comes down to estimation of the latent growth curve's intercept, slope, and curvature of outcome profit on time as a function of CRM, IC and moderators BT and PT. Therefore, we plot how profit grows over time as a function of capabilities and the two ties.

As noted in the results above, interaction effects of IC with ties were significant, so we plot four graphs, two for each level of ties on the effect of IC on profit growth. In first

graph A in figure 3, under low levels of CEO's business ties, the effect of IC on profitability growth over time is not statistically significant for low and higher levels of IC. Firms' profitability seems to be at lower levels and stagnant, i.e. no growth is evident when CEO's BT are weak irrespective of the level of firm's IC. However, in the second graph under higher levels of CEO's BT, profitability of firms seems to be affected in interesting ways under different levels of firm's IC. Given stronger BT, under lower level of IC, there seems to be statistically significant variations in profit-growth from low to high and then back to low over time. Also the actual level of profit at each time period is statistically lower compared to firm's possessing stronger IC. We infer that this could be because under lower levels of innovative capability firm's profit growth is highly varying and volatile due to lack of value creation activities and that firm is trying to exploit value through commercialization by leveraging CEO's business connections. This leads to a condition of unpredictable and risky profitability trajectories over time. To statistically strengthen our arguments based on risk and volatility we conduct additional analysis on profit volatility which we report in the next section.

On the other hand, given stronger BT, under higher levels of IC, profits are not only higher compared to lower IC levels but tend to grow and stabilize at those higher rates over time. This is probably because firms tend to balance and take advantage of value creating innovative capabilities with CEO's business connections. This leads to a condition of balanced growth for firms with lower volatility or variations in profitability over time.

Similarly, we next probe the effects of IC on profit growth under different levels of CEO's political ties (PT). Given a low or weaker PT of CEO, effects of different levels of IC on profit growth are statistically indifferent and they tend to be at lower levels albeit with

statically insignificant increase. However, for firms with CEOs having stronger PT, under lower levels of IC there is a statistically significant profit growth followed by a decrease. Further, the actual levels of profit for each time period are statistically low when compared to higher levels of IC. This leads to a condition of inconsistent growth in profits followed by sudden lower values due to weaker innovative capabilities within the firm. This shows that CEO's can capitalize on their PT only ad hoc in absence of supporting innovation creating infrastructure within the firm. However, given stronger PT with higher levels of IC (Graph C), profitability not only tend to start at higher levels but also tend to grow at a steadily increasing rate. There appears some variation in how profits grow even at higher level of IC given stronger PT, this could be because CEO's unlike their ability to manage their business ties can't completely leverage political ties to their firms' advantage. CEO's tend to be dependent on their political connections while simultaneously trying to leverage these connections. This could explain minor variations in profit growth over time. In sum, we can conclude that stronger political ties provide the firm with the ability to leverage their higher innovative capability for greater profitability and growth compared to lower levels of IC.

Additional Analysis. We conduct additional tests to strengthen our results and provide stronger evidence to the risk and volatility arguments provided above. Specifically, we focus on whether CEO's ties play an additional role of minimizing profit volatility of variations over time. We operationalize profit volatility as the coefficient of variation of profits over the four time periods (Tuli, Bharadwaj, and Kohli 2010). Following Tuli and colleagues we take the natural logarithm of the ratio of standard deviation to average of profits over four year time period to capture profit volatility. The aim is to see if, effects of CRM and IC on profit volatility are reduced at stronger levels of CEO's business and political ties. First,

considering business ties, the interaction effect (IC*BT) is negative and statistically significant ($-.163, p < .05$) while CRM*BT is not statistically significant. Second, for political ties, interaction effect (IC*PT) is negative and statistically significant ($-.130, p < .05$) while CRM*PT is not statistically significant. These results indicate that, given stronger CEO ties, profit volatility is lower for firms with higher IC. Collectively viewing these additional findings with our primary analyses on profit growth, reveal a dual benefit or ‘double-jackpot’ to CEO’s ties: (1) ties tend to enhance or increase the effect of innovative capability on profit level and growth over time (2) and decrease or mitigate the effect of innovative capability on profit volatility to the firm. Thus, as reported earlier, the variation in increasing profitability growth under conditions of strong BT (or PT respectively) with higher levels of IC could be potentially due to correction happening in terms of reduction in profit volatility as profits grow over time. Thus, CEO’s ties with business managers and political authorities increase returns and reduce risks for firms’ profit growth through building CRM and innovative capabilities.

Discussion

Extant literature has offered the arguments that informal relationships between executives across firm boundaries may serve as substitutes for the weak institutional and business infrastructure in terms of regulations, laws etc. in emerging markets like India, China and others (Khanna and Palepu 1999, 2011; Peng and Luo 2000). Interpersonal executive ties facilitate and enhance economic exchanges by providing market information and access to resources. Furthermore, Peng and Heath (1996) argue that unlike firms operating in established and developed western economies, firms in emerging markets don’t grow through ‘traditional strategies’ but use a unique network-based strategy for

performance growth. This strategy is unconventional and relies primarily on interpersonal relationships, ties, trust and informal contractual agreements with outside firms and even government and other institutional bodies. These informal relationships provide the firm with an ability to tap external resources that are not directly possessed by it and which could be appropriated for greater value through embedding them within the firms existing capabilities. This notion of embeddedness emphasizes that firm's capabilities and resources that drive economic advantage and competitive equity are embedded in social action of the firm's senior executives (Geletkanycz and Hambrick, 1997). Such ties foster the ability of the firm to build its social capital (Adler and Kwon 2002), a critical factor driving competitive advantage for firms in emerging markets. In this work we elaborate on the process mechanism through which key firm capabilities, marketing and innovation are leveraged for greater profitability through these informal relationships.

These two customer facing capabilities along with the social capital derived through CEO's relationships are firm specific and difficult for competitors to imitate. Over time, due to time compression diseconomies and embeddedness with other complementary resources, the co-mingling of social capital from ties with capabilities become invaluable providing a competitive edge to the firm (Day 2011; Morgan 2012; Srivastava, Shervani, and Fahey 1999). Scholars from the resource based view literatures (Barney 1991) and the extended dynamic capabilities research stream (Helfat et al. 2007; Teece 2007) have argued that firm resources/capabilities significantly enhance firm performance. However for small firms, in emerging economies that face additional challenges as noted above, such competitive edge is derived from sources outside of the firm boundaries (Dyer and Singh 1998).

Insights and Limitations

In this study, we explore the benefits of CEO's business and political ties that have not been investigated so far within the marketing and innovation literatures as levers to a firm's internal capabilities. Increasingly studies argue and validate effects of CEOs actions and behaviors on innovation (Yadav, Prabhu, and Chandy 2011) and performance outcomes of firms (Sheng, Zhou, and Li 2011). Our view is different from extant research, which often views CEOs as a critical factor mostly at a strategic firm level and hence investigates direct performance effects on the static level of sales, profit or other performance metrics (Peng and Luo 200). We advocate that CEOs have a direct role to play in the key processes within the firm, namely CRM and innovative capabilities and thereby dynamically shape how firms actually grow over time. Using a unique data base that integrates perceptual data from CEOs and Marketing VPs with objective annual profits over time (for four years), we find support that firms with CEOs who possess stronger levels of managerial and political ties are (1) better at increasing profit growth over time from innovative capabilities (2) better at maintaining a consistent increasing growth pattern over time (3) better at reducing risks by minimizing profit volatility. The results for CEOs role in leveraging CRM effects on profit growth are insignificant. However, this doesn't conclusive imply CEOs ties have minimal role in how firms profit from marketing capabilities. A potential reason could be the absence of intermediary customer based performance metrics, which subsequently impact firm profit growth for which CEOs social ties could play an important leveraging role (for e.g. chain of effects model by Rust et. al 2004). Specifically, CEO's business ties could have significant leveraging effect on the link between CRM capability and customer performance as a primary motive of business ties is to effectively managing how the firm ultimately serves the end customer. Although, the interaction effects of political ties with CRM on profit level and

growth were statistically insignificant, the effects were surprisingly negative. Overall, these results could suggest an existence of differential impacts of CEO's ties with regards to firm's CRM processes. It could be that interplay of CEO's business and political ties on outcomes of CRM processes are different and opposing. These are interesting effects which we couldn't reveal in this study due to data limitations and are fruitful avenues of research given that both CRM and innovative capability are heart of a firm's profit engine (Drucker 1954).

Although this research rests on a simple model, it rests on a novel and powerful data design, collection and analytical approach. First, we capture the strategic variables from the top management team, namely the CEO and the senior-most marketing manager. Second, the separation of perceptual measures between multiple key informants alleviates potential problems of common method bias. Third, the dependent variables are objective panel data over four year time period. This addresses criticism of causal inference from cross-sectional surveys. Fourth, we use a novel modeling approach of latent growth curves to simultaneously capture the level of profits, growth, and change in growth. Unlike other panel studies which study effects on purely level of annual performance metrics we investigate close to a dynamic model in capturing within firm trajectory in shape of profits over time and explaining the variance in this shape across firms. Fifth, we conduct additional analysis on the risk side of performance outcomes using volatility index and strengthen our arguments by providing a dual benefit inference through maximizing bottom-line while minimizing risk.

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Figure 1: Conceptual Framework

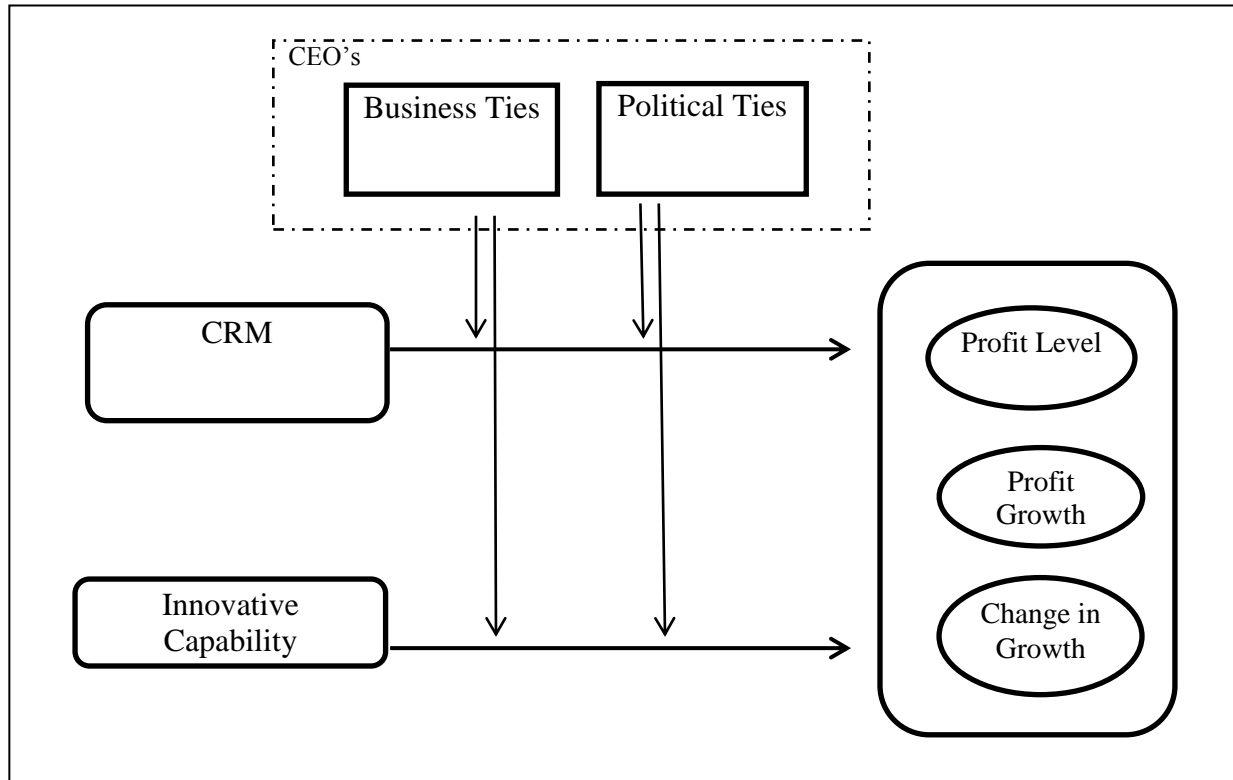
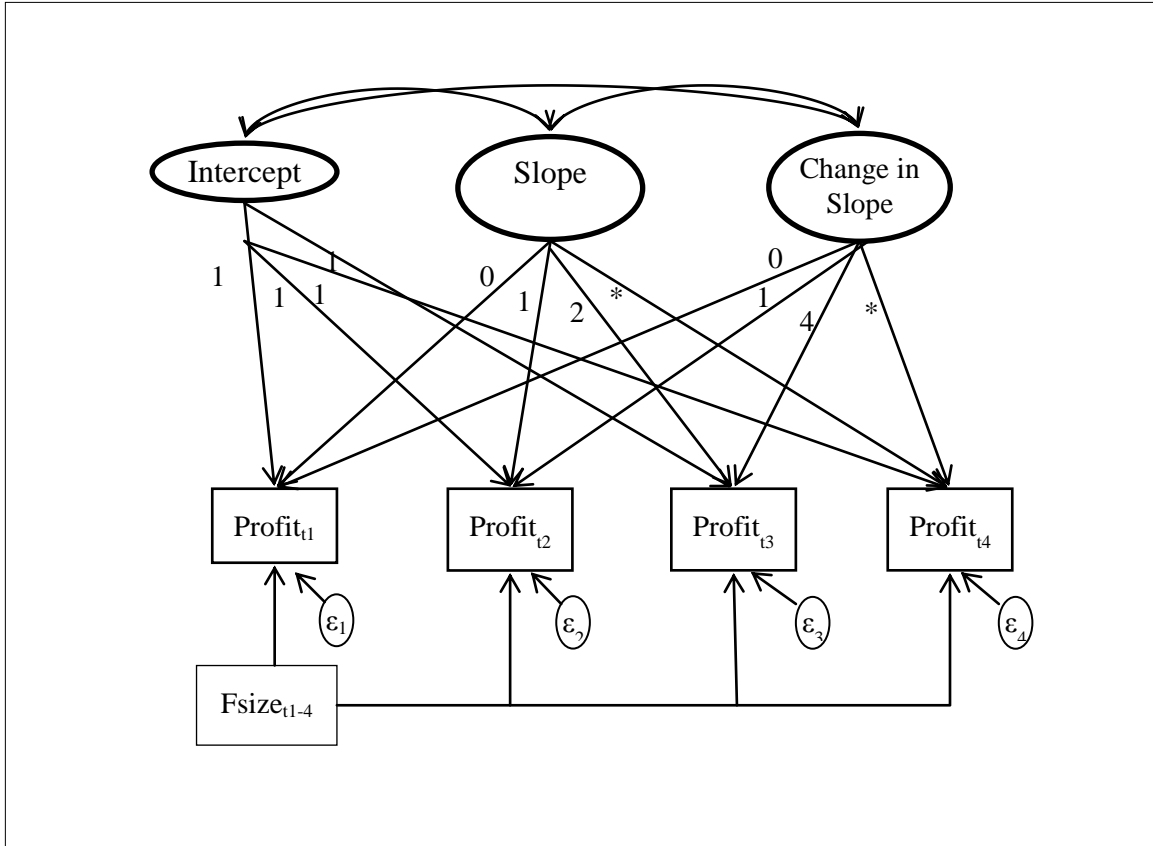


Figure 2a: Unconditional Latent Growth of Annual Profits



Note: Fsize = firm size as number of employees for that time period; * = freely estimated parameter.

Figure 2b: Graph of Profit growth over time (represented by above figure).

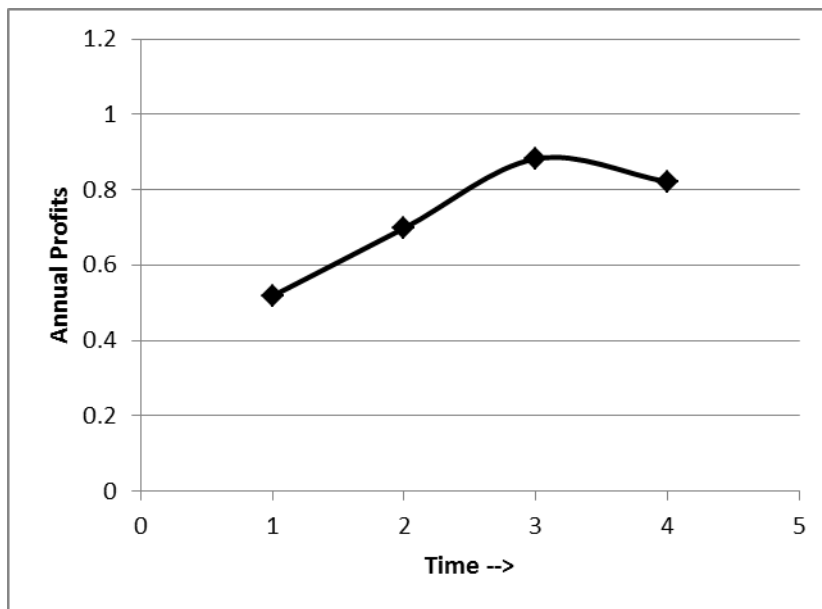


Figure 3: Interaction Effects of Business and Political Ties

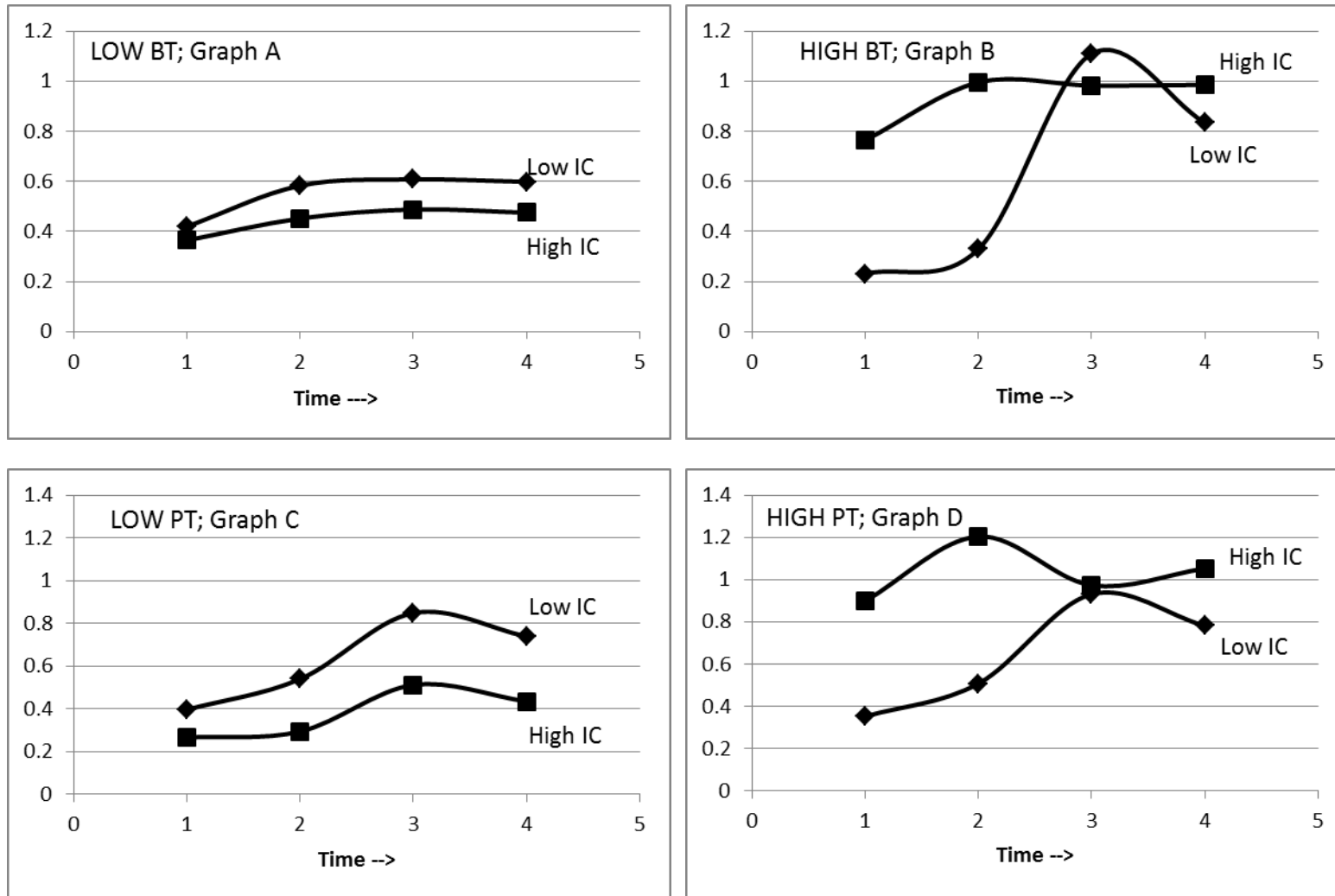


Table 1: Correlation and Construct Validity

Constructs	CRM	IC	BT	PT	I	S	Q
CRM	1						
Innovative Capability (IC)	-.117	1					
Business Ties (BT)	-.287	.233	1				
Political Ties (PT)	-.176	.057	.711	1			
Latent Growth Factors							
Profit Level (I)	-.136	.173	.232	.228	1		
Profit Growth (S)	-.162	.159	.134	.167	.722	1	
Change in Growth (Q)	.091	-.155	-.025	-.059	-.301	-.857	1
Construct Validity							
Composite Reliability	.814	.894		.890			
Average Variance Extracted (AVE)	.689	.739		.801			

Notes: N = 191; Correlations are between Bayesian Factor scores. I, S, Q represent the latent growth factors of four year annual profit. Business Ties is formative construct.

Table 2: Interaction Effects of Ties

Dependent Variable →: (Latent Growth curve factors)	Profit Level	Profit Growth	Change in Profit Growth	Profit Level	Profit Growth	Change in Profit Growth	Profit Level	Profit Growth	Change in Profit Growth
	Model M1 : Main Effects β (SE)			Model M2_a : Interaction Effects of BT			Model M2_b : Interaction Effects of PT		
CRM	-.068 (.082)	-.112 (.107)	.053 (.069)	-.035 (.083)	-.086 (.100)	.041 (.066)	-.019 (.077)	-.076 (.097)	.040 (.066)
Innovative Capability (IC)	.229 (.132)[†]	.217 (.128)[†]	-.182 (.098)[†]	.211 (.133)	.210 (.130)[†]	-.185 (.099)[†]	.184 (.129)	.187 (.127)	-.172 (.098)[†]
Business Ties (BT)	.034 (.091)	-.039 (.081)	.051 (.061)	.035 (.088)	-.039 (.076)	.052 (.058)	.043 (.086)	-.030 (.080)	.046 (.061)
Political Ties (PT)	.138 (.114)	.136 (.102)	-.068 (.078)	.134 (.113)	.141 (.101)	-.076 (.078)	.132 (.114)	.135 (.104)	-.070 (.079)
IC * BT				.172 (.086)[*]	.209 (.084)[*]	-.148 (.072)[*]			
CRM * BT				-.098 (.064)	-.040 (.057)	-.006 (.040)			
IC * PT							.268 (.123)[*]	.269 (.123)[*]	-.164 (.098)[†]
CRM * PT							-.169(.082)[*]	-.080 (.073)	-.001 (.052)
R ²	.094	.086	.053	.183	.150	.086	.160	.152	.103

Notes: Dependent variables are latent growth curve factors (four years; Figure 2_a) after controlling for time variant firm size at each time point.

Appendix A: Survey for Construct Measurement

Items (Respondents, Scale type)	Source
Business Ties: (CEO) (Formative; 1 = “not at all” to 7= "very extensive") Supplier firms Customer firms Competitor firms Distributors or Marketing-based collaborators Technological collaborators	Peng and Luo (2000)
Political Ties: (CEO) (Reflective; 1 = “not at all” to 7= "very extensive") Officials in various levels of government and its agencies. Officials in regulatory and supporting organizations such as tax bureaus, state banks, and commercial administration bureaus. Officials in industrial departments (or bureaus). Spent substantial resources (money, time, and effort) in building relationships with government officials and administrative agencies.	Peng and Luo (2000)
CRM Process: (VP Marketing) (Reflective; 1 = "strongly disagree" to 7 = "Strongly Agree") In our organization, retaining customers is considered to be a top priority. Our employees are encouraged to focus on customer relationships. In our organization, customer relationships are considered to be a valuable asset. Our senior management emphasizes the importance of customer relationships.	Jayachandran et al. (2005)
CRM System: (VP Marketing) (Reflective; 1 = “not at all” to 7 = "very much") We focus on customer needs while designing business processes. A key criterion used to evaluate our customer contact employees is the quality of their customer relationships. In our firm, business processes are designed to enhance the quality of customer interactions. In our organization, employees receive incentives based on customer satisfaction measures.	Jayachandran et al. (2005)

CHAPTER 5: CONCLUSION

Summary

This dissertation examined the effects of marketing and innovative capabilities on firm profitability and growth. In three essays, this issue is explored through a multi-theoretical lens of marketing capabilities (Day 1994; Morgan 2012), firm innovativeness (Rubera and Kirca 2012), upper echelons (Hambrick and Mason 1984) and social capital literatures (Adler and Kwon 2002). The three essays are empirically tested and validated by integrating perceptual survey based data from CEOs and CMOs (Chief Marketing Officers) with objective firm outcome metrics for a period of three years. The data are estimated using suitable and relevant quantitative techniques like structural equation modeling, partial least squares, Bayesian structural equation modeling and latent growth curve modeling. Overall, the dissertation provides novel insights into the drivers and levers of marketing and innovative capabilities, and their integrative nature in influencing firm profitability and growth.

In the first essay, I develop arguments for an expanded scope of marketing capabilities and examine their impact on firm profitability through product innovation. This essay develops a pathway to profitability framework from entrepreneurial orientation to firm performance via innovation outcome. Architectural marketing capabilities are conceptualized as value creating processes while specialized marketing capabilities are viewed as value appropriating process along this pathway. The study's results show that, for firms' to profit from innovation, both value-creating architectural capabilities and value-appropriating specialized capabilities need to be stronger. The results are robust to non-parametric

bootstrap tests and alternate performance metrics over time. These results demonstrate that marketing capabilities have a larger role to play within the innovation efforts of the firm, and that profitable effects are dependent on higher level of marketing capabilities. In addition, the study provides valuable inputs to managers for optimal allocation of marketing resources to create and appropriate greater value from innovation.

In the second essay, with supporting theoretical notions from innovation, leadership, and upper-echelons literatures, I develop a novel framework based on CEO's personality as a primary factor in driving and extracting value through firm's innovative capabilities. A specific trait of the CEO, self-monitoring is proposed as a strategic factor with dual-role: create customer value by enhancing firm's innovative capabilities, create firm value by appropriating superior performance outcomes from these capabilities. The hypotheses are tested using partial least squares modeling. The results show that CEO's self-monitoring positively impacts firm's innovative capabilities and it also enhances the positive performance effect of innovation. Additionally, results also indicate that the impact of self-monitoring on innovation is stronger under challenging market conditions like greater competitive intensity and higher demand uncertainty. Overall this essay makes novel and important contribution to the strategic leadership literature. We introduce and validate the role of a unique and rarely investigated CEO personality trait in self-monitoring within a firm's innovation context.

In the third essay, I extend the learnings from the above two essays to propose a model that comprehensively accounts for the performance effects of both marketing and innovative capabilities over time. Using arguments from social capital literature as the theoretical anchor I develop and test a framework of how CEO's managerial ties with

business partners and political authorities enhance the capabilities performance-growth link. This conceptualization appeals to a growing belief within the capabilities literature that, extracting and growing economic rents through *within-firm* capabilities are maximized and sustained through *outside-firm* strategic factors. From the empirical side, I attempt to apply a recently developed powerful technique of Bayesian structural equation modeling (BSEM) to test the hypotheses. In addition, I use latent growth curves to model profit growth over a time period of four years. The results demonstrate that CEO's social capital derived through informal ties with business and political partners strengthen the effect of capabilities on profitability growth in two ways. Ties enhance the growth of profits over time and, stabilize that growth by minimizing risk reflected in profit volatility. In sum, this essay provides a novel addition to the ongoing investigation of the effectiveness of marketing and innovative capabilities.

In conclusion, as Griffin et al. (2013) note, both academicians and practitioners view *lack of understanding of how marketing can or should contribute to firms' innovation* (p.232) as the top priority. I attempt to directly address this issue in my first essay and provide theoretical and managerial insights. In the next essay, I proceed to investigate how innovation producing capabilities i.e. innovative capabilities of a firm could be developed and appropriated for profits. This is of utmost importance and relevance to managers as unless firms understand the drivers of capabilities that produce innovation, their ability to develop new products/services and subsequently profit using marketing actions (essay 1) may not be actionable. Finally, in the third essay I make a natural progression to further the understanding of long term impact of marketing and innovative capabilities on firm profitability over time.

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